

# Farm Chemicals

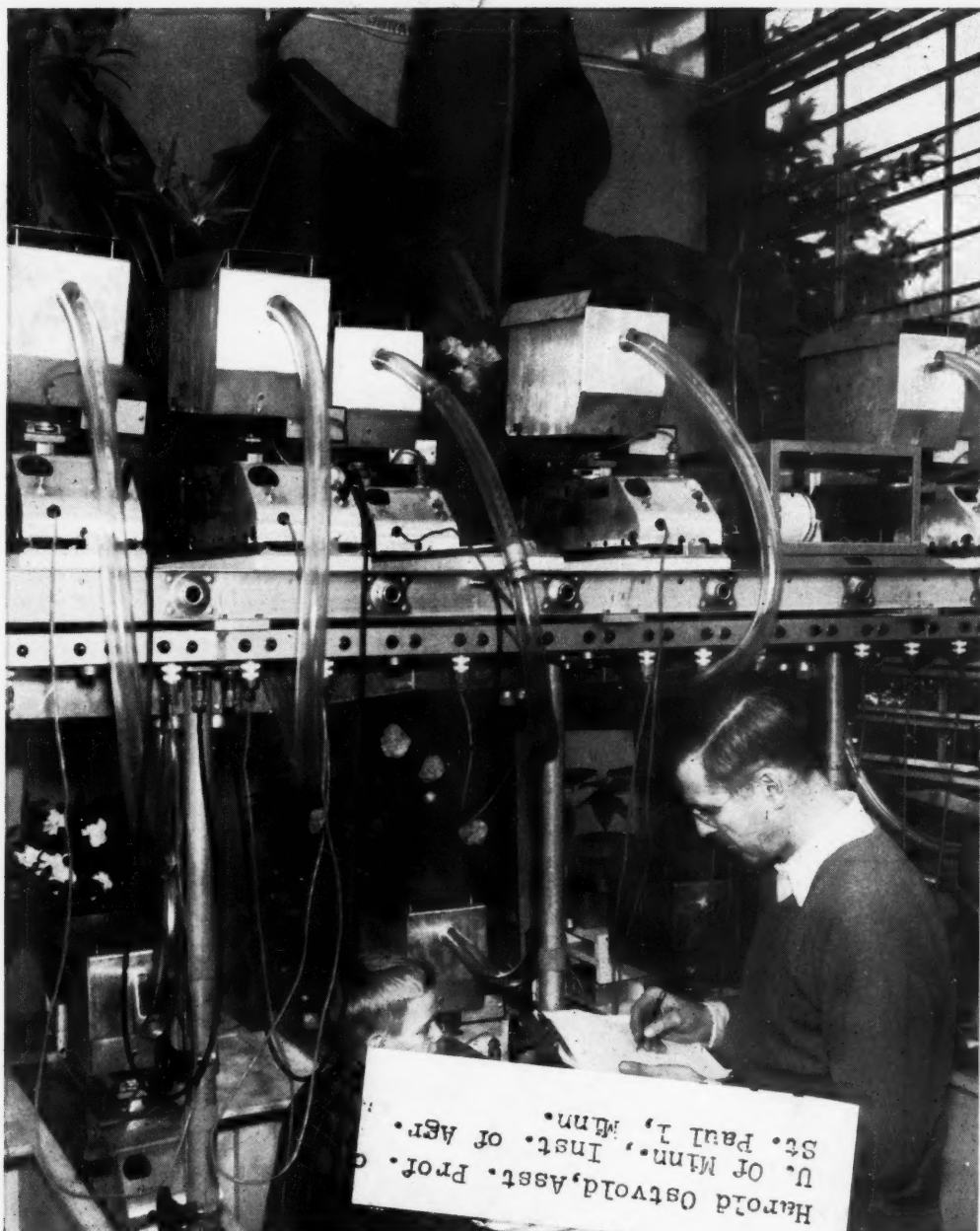
Pioneer Journal  
of the Industry

Pesticide  
Report . . . . 41

Meet  
Program . . . 46

California  
Conference . . 48

Test FDA  
Tolerances . . 51





# TRIPLE SUPER- PHOSPHATE

1. RUN-OF-PILE FOR MAXIMUM AMMONIATION
2. GRANULAR FOR DIRECT APPLICATION
3. PROMPT SERVICE TO MEET EVERY REQUIREMENT

Superior phosphate fertilizers have been produced for nearly 30 years. This unequalled experience is your assurance of quality and dependability in Triple Superphosphate. To plan your shipments for maximum satisfaction, call upon your Bradley & Baker representative today.

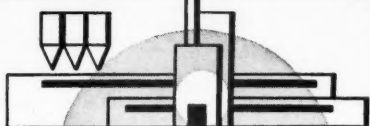
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**TENNESSEE PRODUCTS**  
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# LINK-BELT "turn-key" SERVICE

**unlocks new efficiencies  
in fertilizer production**



**Under this inclusive 5-point  
program, LINK-BELT will:**

- 1. PILOT THE PROCESS**, using our complete laboratory and test facilities.
- 2. DESIGN THE SYSTEM** as an efficient, integrated operation conforming to your exact needs.
- 3. FABRICATE THE EQUIPMENT**. Link-Belt makes a complete line—will also supply special requirements.
- 4. ERECT THE PLANT**, providing crews and supervisory service.
- 5. START THE OPERATION**, with field engineers ready to make final adjustments.

Up goes steel work and Link-Belt equipment for another fertilizer plant handled on a "turn-key" contract. This TVA continuous ammoniator process will utilize anhydrous ammonia and ammonium nitrate solutions.

**F**REEDOM from construction detail . . . integrated operation . . . a uniform product—Link-Belt "turn-key" service offers these and more benefits for fertilizer plants. Our specialists stand ready to cooperate with your engineers or consultants to produce a top-grade fertilizer at minimum cost.

Link-Belt experience includes

dry-mix, superphosphate, ammonium phosphate, ammonium nitrate, ammonium sulphate, urea, granular and other types of fertilizer. If you're planning a new operation or feel your present system should be modernized, you'll want full details. Write for Book 2459 showing equipment and typical layouts . . . or call your nearest Link-Belt office.

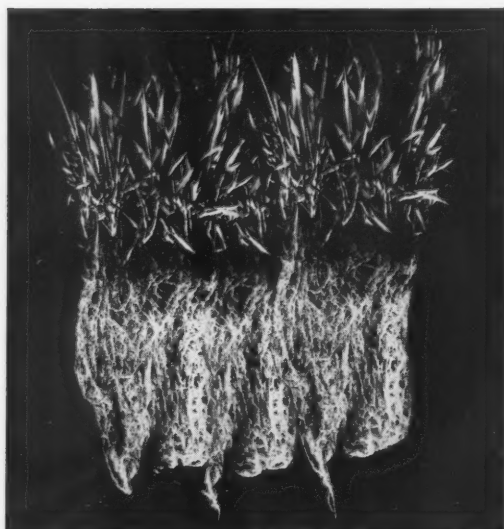
## LINK-BELT

**PLANTS AND EQUIPMENT FOR THE FERTILIZER INDUSTRY**

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

14,148

**IN  
WHEAT,  
POTASH-ENRICHED  
FERTILIZERS  
MAKE  
THE  
DIFFERENCE**



with sufficient potash



without sufficient potash

It's as simple as this—good soil . . . good crops, poor soil . . . poor crops. To insure healthy, bumper crops balanced fertilizers are needed. And it's the potash in these balanced fertilizers that builds resistance to plant diseases, improves quality and yield.

USP's high-grade muriate of potash has the highest  $K_2O$  content and is free-flowing and non-caking—important advantages in the manufacture of these modern fertilizers which help American farmers to better crops and better incomes.

**HIGRADE MURIATE OF POTASH 62/63%  $K_2O$   
GRANULAR MURIATE OF POTASH 60%  $K_2O$  MIN.**



REG. U. S. PAT. OFF.

**UNITED STATES  
POTASH COMPANY**

INCORPORATED

**30 Rockefeller Plaza, New York 20, N. Y.**

Southern Sales Office

Rhodes-Haverly Building, Atlanta, Georgia



# Farm Chemicals

JUNE, 1956

No. 6

Vol. 119

Pioneer Journal of Farm Chemicals Industry, Est. 1894

## INDUSTRY NEWS

Business & Management...	4	Government.....	30
People.....	27	Associations & Meetings...	36
Calendar.....	38		

## FEATURES

USDA Pesticide Report.....	41
Fire-fighting—Lab Workers Learn How in New Course.....	45
Fulbright, Fouce Highlight NPFI Convention Program.....	46
300 Attend California Fertilizer Conference.....	48
V-C Independents Ask Statement of Intent.....	50
Latest Tolerance Actions.....	51

## DEPARTMENTS

Viewing Washington.....		Equipment & Supplies....	56
On Agriculture.....	31	Suppliers' Briefs.....	59
On Business.....	32	Patent Reviews.....	60
Reader Service.....	33	<i>Dr. Melvin Nord</i>	
Chemicals.....	53	Fertilizer Materials Market	62
Pest Reports.....	54	Statistics.....	63
Buyers' Guide.....	67		

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San Francisco 4. William Blair Smith, Russ Building.....	EXbrook 2-3723



Member

Business Publications Audit

Published monthly by Ware Bros. Company, 317 N. Broad St., Philadelphia 7, Pa.  
Telephone MArkett 7-3405

Acceptance under Section 34.64 P. L. & R., authorized

JUNE, 1956

## In this issue . . .

USDA confirms, in its latest pesticide situation report, that the control chemicals field is in the best condition since 1951. Beginning on page 41, the principal facts and figures from the report are outlined to accompany several of the major consumption and disappearance tables.

Workers at the Whittier, Calif., research laboratories of American Potash & Chemical not only learn safety fundamentals, they actively participate in a fire fighting course designed to teach them what to do until professional fire-fighting crews arrive on the scene. See page 45 for a brief story.

Senator J. W. Fulbright will be principal speaker at the 1st National Plant Food Institute convention. As described on page 46 the program includes several other addresses and presentations and the premier showing of the Institute's new movie, "What's in the Bag?"

Some 300 persons attended the CFA sponsored California Fertilizer Conference to hear a number of excellent papers on plant foods and crop growth and panels on both salinity problems and phosphate fertilization. See page 48 for brief excerpts.

See page 50 for more on the V-C Chemical fight. The insurgents have asked for "letters of intent" from stockholders but still have not publicly announced an intended program.

John Harms brings you up to date on new pesticide tolerances and tolerance extension dates, beginning on page 51.

## Cover story

John Ott and his time-lapse photographic stories will be featured on the NPFI convention program. Pictured with his son Henry, Ott has his own TV garden show, provides material for Walt Disney's nature films and has utilized his technique in a wide variety of fields.

# Business & Management

## ... News of the Industry

### Explosion at Sunoco Pa. Ammonia Plant

At Marcus Hook, Pa. reconstruction of Sun Oil Co.'s ammonia plant is underway following a \$3 million fire and explosion. The unit is expected to resume operations in about five months.

The fire apparently started in the air purification section and spread to the hydrogen purification unit where a burst pipe permitted hydrogen gas to mix with air resulting in an explosion which badly damaged the control room and compressor house. Eight employees were injured.

Production at the \$10 million plant got underway in February following minor startup difficulties. Escape of other sections of the refinery from damage was credited to quick action of well trained employees.

### Pennsalt to Open New Mexican Plant

Operations of Pennsylvania Salt Mfg. Co. in Mexico will soon be expanded with completion of a new pesticide processing plant and distribution center at Navojoa, Sonora. The facilities provide an expansion of Pennsalt de Mexico's central plant and office operations in Mexico City and establishes another base for the eventual distribution of the company's full chemical line.

### NH<sub>3</sub> Converter for Aylward Stations

Aylward Fertilizer Co. of Sullivan and El Paso, Ill. has placed in operation a portable ammonia converter designed and manufac-

tured by the J. C. Carlile Corp. The first unit of its type to be constructed, it will serve four Aylward stations.

Mounted on a short lowboy trailer, the converter can be transported at speeds up to 45 mph and can be hooked up to a station operating circuit in about 10 minutes. Conversion of the anhydrous ammonia is accomplished directly from tank cars and there is no provision for storage of NH<sub>3</sub>. A car can be converted to aqua ammonia in four to seven hours.

### Operations Begin at N.C. Liquid Plant

Albemarle Chemical Co., Winfall, N. C., began operations this spring offering four grades of liquid mixed fertilizer to Tar Heel farmers—3-9-9, 5-10-10, 8-8-8 and 4-12-12.

The company, owned by Rufus Harrell, Norfolk, Emmett Winslow and Phillip Thatch, Hertford, employs one man in the plant, one in the machinery shop and a manager, Ralph Sasser of Hertford.

Furnace grade phosphoric acid, nitrogen solutions and solid muriate of potash are the basic materials currently used.

### ACP Plant, Office In St. Joseph, Mo.

St. Joseph, Mo. is the site of a new office and factory for American Chemical Paint Co., serving a territory lying between the Mississippi river and the Rockies and from Canada to the Gulf of Mexico.

Production of a complete line of farm and metalworking chemicals is planned.

### Borax Consol. Ok's US Firm, Potash Merger Discussed

Borax Consolidated Ltd. (Great Britain) has approved a decision to set up Pacific Coast Borax as a separate US company invested with most of its current American assets and operations. Control of PCB would remain in a British holding company, although a majority of the new board will be Americans and 8½ per cent of the stock will be US-owned.

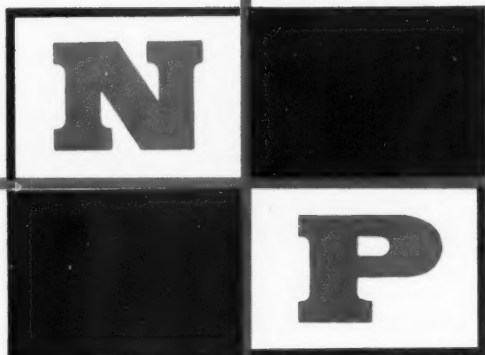
Members of Lazard Freres & Co., F. Eberstadt & Co., Lee Higginson Corp. and the Rockefeller interests have agreed to join the board of the new firm and provisional arrangements have been made for loads totaling \$16 million from a New York insurance company and a group of American banks.

Discussions have also been held with officers of United States Potash Co. concerning possible merger of the new American borax concern. H. M. Albright, president of USP, explains that Borax Consolidated has had a substantial stock interest in his company for many years and was largely responsible for financing development of mining and refining operations in the early 1930's.

It is felt that merger would provide a wider diversification of products in addition to permitting effective joint research and new economies in operation. Should the merger go through, assurances have been given that the potash organization would continue to function and the potash interest would be represented on the new board.

### Delhi-Taylor Potash

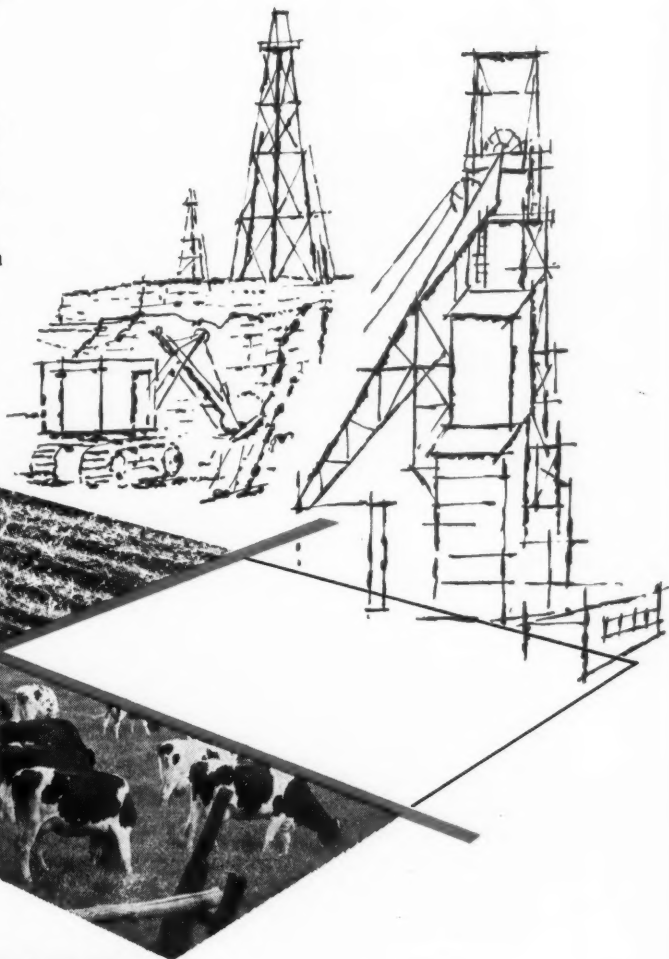
At a recent Delhi-Taylor Oil Co. stockholders meeting the company reported hopes of beginning work on its projected potash operation within a year. A \$20 million potash mining and beneficiation plant is planned at Moab, Utah.



## *a joint venture in Potash*

A new, substantial and dependable source of potash for fertilizer manufacturers is being developed by National Potash Company in New Mexico.

National Potash is a joint undertaking of Pittsburgh Consolidation Coal Company and Freeport Sulphur Company. The former is one of the nation's major coal firms, the latter a leading producer of sulphur with additional interests in oil and other minerals. The skills which they bring to the mining, refining and marketing of potash assure top quality, uniformity and service.



**NATIONAL  
POTASH COMPANY**

205 EAST 42nd ST. • NEW YORK 17, N. Y.

*In just one year...*

over  $\frac{1}{4}$  million tons  
have switched



*Round-the-clock production at Bonnie takes the push out of peak-season demands. Mammoth off-season storage capacity swallows up the seven-day-a-week production, stores it safely until you need it. And the industry's finest delivery schedules assure you high-quality triple when you need it.*

### *International's natural curing helps you cut costs*

• It's the natural curing process that gives you that "something-extra" quality of the triple super from Bonnie.

It helps you cut costs . . . gives you better control of manufacturing conditions and chemical reactions . . . stabilizes your formulation problems . . . and reduces the delivered unit cost of ( $P_2O_5$ ). Here's what natural curing means to you:

**Uniform particle size** . . . for dependable ammoniation results.

**Finer texture** . . . for more complete ammoniation in every batch.

**Stabilized product** . . . for better chemical control.

**Constant high analysis** . . . with guaranteed minimum of 46% A.P.A.

**Uniform high quality** . . . for increased ( $P_2O_5$ ) availability.

To guarantee this top quality triple from a plant as large as Bonnie required extra planning in

plant design . . . extra capacity for a dependable supply . . . extra time to complete the five-week natural curing process . . . and extra care and quality control to assure uniform results in batch after batch.

This is the way Bonnie was built. And the results of the past year have proved Bonnie can deliver . . . Bonnie is dependable . . . and Bonnie can produce the kind of triple you want.



# of Triple Super Sales to Bonnie

*The reason:*

*trustworthy service  
and delivery plus superior  
results with International's  
natural-cured triple*

Yes, in a single year, International has zoomed to a top position as a supplier in the triple super industry. Here's why, in the actual words of Bonnie customers:\*

**Others have recommended you**

"Several nitrogen producers have recommended your product to us because of its excellent ammoniation. They were right."

*Missouri*

**You live up to delivery promises**

"What we like about doing business with International is your service, particularly regarding delivery. Our material has always been shipped when requested."

*Indiana*

**Your triple stores better**

"Last September, we stored some of your triple next to competitive materials from two other suppliers. Six months later, the other two piles were set up hard enough to be blasted. Any lumps in your product could be broken with your fingers."

*Minnesota*

**Your triple is a better product**

"This is the best triple we have ever used for ammoniation."

*Ontario*

**We get better ammoniation results**

"We can put 600 lbs. of Urana 10 in with 1,400 lbs. of triple."

*New York*

**Your Triple holds more nitrogen**

"We have been amazed with the results. With a very high humidity we have been using 500 lbs. of nitrogen solution with 1,400 lbs. of your triple. Never before have we been able to get over 360 lbs. of this solution in the mix."

*Maine*

**We save money with your triple**

"We like the constant high analysis of your product. It aids us in formulation and reduces the unit delivered cost."

*North Dakota*

**You meet delivery schedules**

"We certainly appreciate the way International came through on schedule during the rush season."

*Arkansas*

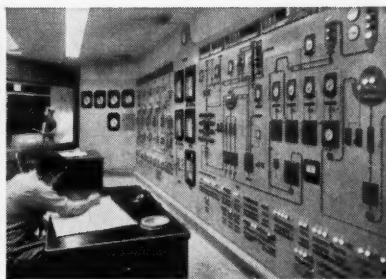
*\*names on request*

These are just a few of the reasons why this year, the big switch in triple super sales is to Bonnie — giant production facilities . . . prompt delivery . . . superior quality . . . and outstanding ammoniation results.

So this year, for a better product, and service you can depend upon, look to International Minerals & Chemical Corporation. You'll be glad you did.



This 85,000-ton curing unit — as big as two, full-sized football fields — is one example of the time and big capacity needed to produce natural-cured triple.

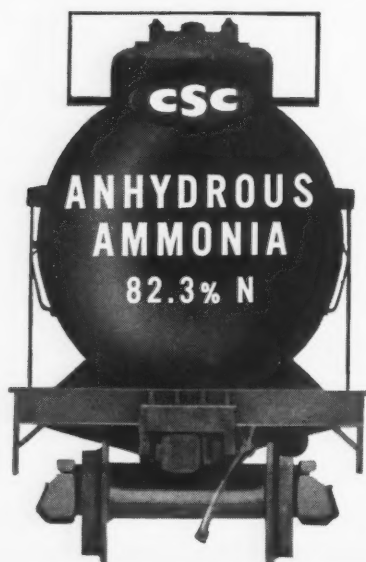


These "doodads" and dials get results . . . guard the uniformity and quality of every batch of triple super from Bonnie . . . help assure you of top results in ammoniation.



**INTERNATIONAL MINERALS & CHEMICAL CORPORATION**

Phosphate Chemicals Division • General Offices: 20 North Wacker Drive, Chicago 6



## Four leading forms of Nitrogen

Commercial Solvents Corporation produces and supplies fertilizer manufacturers with four important forms of nitrogen. The three liquid forms are widely used for the preparation of high-analysis fertilizers and for the ammoniation of superphosphates. Exclusive, granular CSC Ammonium Nitrate fertilizer is distributed solely by fertilizer manufacturers. This high-quality, uniform product is manufactured at Sterlington, Louisiana. Adequate storage facilities assure prompt shipments and service. For complete information including Technical Data Sheets, write Agricultural Chemicals Department, Commercial Solvents Corporation, 260 Madison Avenue, New York 16, New York.

**COMMERCIAL SOLVENTS CORPORATION**  
260 MADISON AVENUE, NEW YORK 16, N. Y.



NITROGEN THE HEART OF THE HARVEST



*Best of the crop  
Since 1917*

PHOTO COURTESY WESTERN GROWERS ASSN.

## **TRONA<sup>®</sup> POTASH** *for Agriculture*

In 1917 state fairs were awarding prizes for outstanding farm products just as they are today. Then as now, growers depended on Trona<sup>®</sup> MURIATE OF POTASH for high quality crops. For it was in 1917 that Trona, first to produce domestic Potash when World War I pinched-off foreign sources, shipped the first trainload to the east coast. For the next twenty years Trona was the *only* domestic source of Potash and today, in spite of AMERICAN POTASH AND CHEMICAL CORPORATION'S broad diversification program, is still one of the primary basic suppliers of high grade Muriate and Sulphate of Potash for Agriculture.

**MURIATE of POTASH**, agricultural grades 95-98% KCL, (60% K<sub>2</sub>O minimum), regular and granular.  
**SULPHATE of POTASH**, agricultural grade, 95-98% K<sub>2</sub>SO<sub>4</sub> (51% K<sub>2</sub>O minimum).



**TRONA**

**American Potash & Chemical Corporation**

**Offices** • 3030 West Sixth Street, Los Angeles 54, California  
99 Park Avenue, New York 16, New York  
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**Plants** • Trona and Los Angeles, California; Henderson, Nevada  
San Antonio, Texas (American Lithium Chemicals, Inc.)

**Export Division** • 99 Park Avenue, New York 16, New York

### PRODUCERS OF—

<b>BORAX</b>	<b>BROMINE</b>
<b>POTASH</b>	<b>CHLORATES</b>
<b>SODA ASH</b>	<b>PERCHLORATES</b>
<b>SALT CAKE</b>	<b>MANGANESE</b>
<b>LITHIUM</b>	<b>DIOXIDE</b>

— and a diversified line of  
specialized agricultural and  
refrigerant chemicals

# Bigger Loads...

# Less Spillage

## ...more Productive capacity



It's the amount of bulk-material *delivered* per shift or per day that counts, and the new model HA "PAYLOADER" tractor-shovel has proven in plant after plant that it consistently delivers more material faster and at less cost than heavier machines with larger engines.

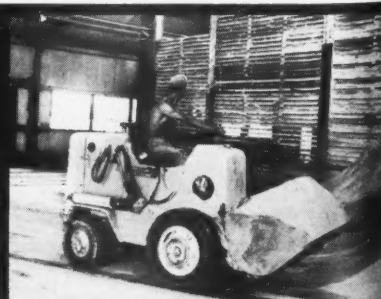
A big reason for this superior performance is the roll-back bucket action that scoops up heaping loads and carries them *low*. Another, is the exclusive built-in hydraulic shock absorber that cushions the load during travel — reducing spillage and allowing higher travel speeds.



**Gets more:** Forty degree tip-back of bucket at ground level gets heaped loads.



**Keeps more:** Maximum bucket tip-back is reached *before* bucket is raised—less spillage at pile.



**Carries more:** Exclusive hydraulic shock absorber cushions the load during transport — less spillage while carrying.





"PAYLOADER" superiority on bulk-material handling work is the result of 34 years of pioneering and leadership in tractor-shovel manufacture. "PAYLOADER" is also the complete, proven line — from 14 cu. ft. to 2¼ cu. yd. capacity — a size for every purpose. There is a nearby Distributor ready to serve you.



**PAYLOADER®**  
MANUFACTURED BY  
**THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.**  
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY



**Delivers more:** You start with a bigger load and—what's more important—arrive with a bigger load.



**FREE . . .**  
Owner reports of  
**PAYLOADER**  
performance

This booklet contains performance reports of "PAYLOADER" tractor-shovels in a variety of plants and applications. A copy will be sent on request, without obligation.

**THE FRANK G. HOUGH CO.**  
734 Sunnyside Ave., Libertyville, Ill.

- ☐ Send "PAYLOADER" Reports booklet
- ☐ Literature on Model HA (18 cu. ft.)
- ☐ Literature on larger models—to 2¼ cu. yd.

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

## ... Business & Management

### Riverdale Moves to Chicago Heights, Ill.

A new plant and office was opened by Riverdale Chemical Co. on May 1 at Chicago Heights, Ill. The 16 year old firm was formerly located in Harvey, Ill.

Primary sales efforts of the company are concentrated in 17 Mid-West states, handled mostly through distributors and jobbers. Riverdale manufactures pesticides exclusively and during April introduced its newest product, Solvent-Free DDT Granules.

The new quarters will provide 50,000 square feet of operating space, permitting an increase of over 50 per cent in production. Sales are expected to top the three million dollar mark during the year and some 75 persons will be employed during the peak season.

### Monsanto GM Trophy To El Dorado Plant

Monsanto's General Manager's Trophy has been awarded to the El Dorado chemical plant of Lion Oil Co. division for achieving a new company safety record. Presentation of the trophy took place at an employee safety meeting.

At the time of presentation the

approximately 800 employees at El Dorado had worked 5,476,952 safe man-hours without a lost-time accident—involving 1,032 days since July 6, 1953. The trophy is traditionally held by the Monsanto plant which has accumulated the greatest number of continuous man-hours without a lost-time accident.

During recent months the El Dorado works has won five major safety awards and is slated to receive other national honors during the year based on its outstanding record.

### Eli Lilly to Build Ind. Ag. Research Center

Three million dollars will be invested by Eli Lilly & Co. in construction of an agricultural research center on 417 acres at Greenfield, Ind. site of the firm's biological laboratories.

Construction is scheduled to begin by mid-summer and from one to two years will be required to complete the dozen buildings. The agricultural research program will include work in insects, insecticides, plant nutrition and diseases in addition to animal nutrition and veterinary medicine.

### Congo Growers Plan Pyrethrum Factory

Another step to improve supplies of African pyrethrum was announced recently when growers of the Belgian Congo and Ruanda-Urundi signed a contract calling for construction of a \$500,000 pyrethrum processing factory near Goma in the Congo. This followed earlier word from British East Africa of similar plans for a plant in that area.

A Belgian firm will construct the Congo plant under specifications calling for 25 per cent of crude extract or a refined extract meeting American specifications for aerosol bombs. The growers subscribed all of the capital of the new firm, Kivu Agricultural Products Processing Co. (Trapak).

It is expected that all flowers not processed by other local means will be handled under the contract before the end of 1957.

### British Herbicide Plant for Du Pont

Increased competition in the British weed control market will result from establishment of a Du Pont subsidiary in that country Du Pont Co. (United Kingdom) Ltd. The initial project of the new firm will be to provide Telvar and Karmex substituted urea herbicides of British manufacture for the British market.

The firm also will explore the possibility of future manufacture and sales of other products in the United Kingdom.

### New Incorporation

A charter of incorporation has been granted Bactex Fertilizer Co., Inc., San Antonio, Tex. listing capital stock of 7,500 shares. Incorporators were Wm. Alter, Sylvan R. Alter and Leon A. Tobias.

### New Barge for NH<sub>3</sub> Transport



One of the two new barges for transporting anhydrous ammonia recently placed in service by Mid-South Chemical Corp. Barges transport ammonia on the Mississippi River and Intracoastal Waterway from manufacturing plants in Louisiana to Mid-South's network of new terminals, including installations at Harlingen, Tex., New Iberia, La., Memphis and Peoria, Ill.



YOU INCREASE PROFITS WHEN YOU USE

# TRIANGLE BRAND COPPER SULPHATE

IN YOUR FUNGICIDE AND FERTILIZER FORMULATIONS

Since 1885, successful growers have preferred Triangle Brand Copper Sulphate in fungicides. It has consistently proved itself more effective and superior to organic materials; in sprays, where Bordeaux Mixture is the most reliable, or in dusts, if preferred.

In mixtures and emulsions, it is compatible with virtually every other pesticidal material. In fertilizers, it is important for enrichment of the soil and its use guarantees larger, healthier and more profitable crops. Forms of Triangle Brand Copper Sulphate available are:

**INSTANT** (powder) for quick and efficient mixing of Bordeaux sprays.

**DIAMOND** (snow) small or large crystals, all containing 25.2% metallic copper.

**BASIC** Copper Sulphate in powder form, containing 53% metallic copper.

Contact us today for further information on TRIANGLE BRAND COPPER SULPHATE and its use in your agricultural formulations.

**PHELPS-DODGE**

REFINING CORPORATION

300 PARK AVE., NEW YORK 22, N.Y.

5310 W. 66th STREET, CHICAGO 38, ILL.





## . . . Business & Management

### Award Herty Medal To Dr. Etheredge

Dr. Mahlon P. Etheredge, dean of the school of science, Mississippi State College and a figure well known to the industry, has been named recipient of the Herty Medal for 1956 by a committee of the Georgia section, American Chemical Society.

Professor and head of the department of chemistry and chemical engineering at the college since 1945 he has been active and influential in educational matters in the Southeast. At present he is serving as president of the Association of American Fertilizer Control Officials and the Association of Southern Feed and Fertilizer Control Officials and vice-president of the Association of Official Agricultural Chemists.

The Herty Medalist is selected by the section from candidates nominated by local ACS units located in nine Southern states.

### Stock Split Voted By AP&C Holders

At a recent annual meeting stockholders of American Potash & Chem. Corp. voted to split Class A and Class B stocks two

and one-half for one and to increase the authorized number of such shares from one to three million.

The name of the Class B stock was also changed to common stock. Following the split there will be 1,634,378 shares of the two stocks outstanding.

### Stauffer Plans New Dock at Louisville

An application has been filed by Stauffer Chemical Co. with the Army Corps of Engineers for permission to build a major addition to its dock facilities on the Ohio river at Louisville, Ky.

Plans call for construction of a 700 foot dock costing about \$300,000, equipped to handle loading of 175 foot chlorine barges and loading of outgoing barges with finished products.

### Calspray Names Top Distributor Salesman

Michael G. Curley, sales representative for Erikson Farm Supply, Inc., South Acton, Mass., is the grand prize winner in California Spray-Chem. Corp.'s "new business" sales contest. Curley received an all expense, two week vacation for two to Hawaii, plus \$500 spending money.

Prizes of \$150, \$100 and \$50 were awarded in each Calspray sales district for distributor salesmen placing second, third and fourth in the contest.

The contest showed, according to spokesmen, a remarkable increase in sales to outlets such as super-markets and drug stores and also in restaurants where a dry bait fly killer has been popular.

Dr. Robert Wallace, Calspray district manager, congratulates Michael G. Curley and his wife Muriel for winning the grand prize in a "new business" sales contest.

### Claim Potash Find In Mo. Mineral Lode

In Missouri, H. B. Hart, a former senator and current president of Ozark Explorations Co. of Camdenton claims his firm has uncovered a mineral lode with a potential of over \$200 million. Although Hart's claims of titanium, magnesium, zirconium, lithium, zinc, lead, nickel, uranium, thorium, etc. bears little relation to this industry, his comments on the fertilizer content of the rock are of interest.

Feldspar and potash alone, says Hart, makes the mine valuable for a fertilizer mill which in turn would pay the way for further expansion. Dissenting geologists readily admit the presence of quantities of feldspar but report the potash unavailable to plants through extraction.

Site of the strike is the Decaturville Dome mine located south of Camdenton and north of Lebanon. Hart reported plans for a trip to Washington to seek government grants for the plant food mill.

### Antara Distributors

Denver Fire Clay Co., 2301 Blake St., Denver, Colo. has been appointed distributor for Antara Chemicals products in Colorado, Wyoming, Montana, Utah, Idaho, New Mexico and western Texas.

### Licensed for Poultry By-Product Output

B-M-K Corp., Salisbury, Md. has been formed to license producers of hydrolyzed poultry feathers under patent 2,702,245.

Included in the five companies now licensed are Ideal By-Products Div. of Wilson & Toomer Co. and Smith-Rowland Co. Div. of Smith-Douglass Co.







## How to cut cake with a cube

**T**AKE a fern-shaped ammonium chloride crystal. Change its form to a cube, and you've cut fertilizer caking and bag-set in a hurry.

In fertilizers, ammonium chloride is formed during the mixing process by reactions between nitrogen materials and potassium chloride.

Ordinarily, it develops into fern-shaped crystals with hundreds of tiny, finger-like projections like those shown at right above. These crystals will cement fertilizer particles into a cake.

But now you can shape those crystals into non-caking cubes — and do it every time — with Sohioen ammoniation solutions.

Sohioen solutions No. 10 and No. 15 are specially formulated with ammonia, ammonium nitrate and urea. And urea has the ability to transform ammonium chloride crystals into square-edged, free-flowing cubes.

What's more, with these Sohioen solutions, you finish three jobs at once. You solve costly conditioning problems, complete ammoniation and add supplemental nitrogen to meet grade.

So if caking is one of your problems, call the man from Sohio. He'll be glad to show you how Sohioen improves formulation and cuts costs.

*We're serious about service at Sohio*



**SOHIO CHEMICAL COMPANY**

FT. AMANDA RD., P. O. BOX 628, LIMA, OHIO

*Are you using*

**OUR IMPROVED**

**DUVAL**

*Muriate of Potash ?*

- HIGH ANALYSIS
- IMPROVED PHYSICAL  
CONDITION

**DUVAL SULPHUR and POTASH CO.**

Modern Plant and Refinery at Carlsbad, New Mexico

Please address communications to  
**ASHCRAFT-WILKINSON CO.**

Exclusive Distributors  
**ATLANTA, GEORGIA**  
Cable Address: Ashcraft

District Offices  
NORFOLK, VA. • CHARLESTON, S. C. • JACKSON, MISS.  
TAMPA, FLA. • COLUMBUS, O. • MONTGOMERY, ALA.







# SALESMEN... to help boost YOUR profits!



**LION Advertisements  
Sell LION Nitrogen, and  
Your Mixed Goods, Too!**

Continuous Lion advertising appears in leading farm publications, month-after-month, to pre-sell the Lion brand to farmers—and to sell the value of your mixed fertilizers as well!

Current advertisements are appearing in Farm and Ranch-Southern Agriculturist, Progressive Farmer, The Farmer, Nebraska Farmer, Kansas Farmer, Prairie Farmer, Wallace's Farmer & Iowa Homestead, Wisconsin Agriculturist and Farmer, Missouri Ruralist and Missouri Farmer. All of these advertisements are in color.

Each Lion advertisement promotes the economic benefits of properly using fertilizers, including Lion Ammonium Nitrate, to help increase the farmer's profits. Each advertisement sells hard on the importance of soil tests in the intelligent use of all commercial fertilizers. Lion, a leader in nitrogen production, leads the way to good fertilization practices . . . to better profits for you!

## LION'S QUALITY LINE OF NITROGEN FERTILIZER MATERIALS

- LION ANHYDROUS AMMONIA**—82.2% nitrogen. Quality guaranteed.
- LION AQUA AMMONIA**—Ammonia content above 30%—other grades to suit your requirements.
- LION AMMONIUM NITRATE FERTILIZER**—Improved spherical pellets. Guaranteed 33.5% nitrogen.
- LION NITROGEN FERTILIZER SOLUTIONS**—Various types to suit your particular manufacturing needs.
- LION SULPHATE OF AMMONIA**—White, uniform, free-flowing crystals. Guaranteed 21% nitrogen.

# LION OIL

A DIVISION OF MONSANTO  
CHEMICAL COMPANY



# COMPANY

EL DORADO, ARKANSAS

DISTRICT SALES OFFICES: Lion Oil Building, El Dorado, Ark. • Insurance Exchange Building, Des Moines, Ia.  
National Bank of Commerce Building, New Orleans, La. • 1401 Building, Atlanta, Ga.

## . . . Business & Management

### Shea Consolidated Ag Sales Division

Agricultural sales have been consolidated by Shea Chemical Corp. in a new division headed by H. E. Frederick, vice president. The principal activities will be marketing dicalcium phosphate, phosphate feed solution and phosphoric acid to the feed and fertilizer industries.

Errol F. Cook has been named nutritionist of the division and Wm. J. Barrett, technical sales engineer.

### Chile Plans Boost For Nitrate Industry

A \$36 million investment by the Chilean government in its sagging nitrate industry has been approved in an effort to cut production costs and better the competitive position with synthetic nitrates. Plans include production and sale of byproducts, mechanization of loading at the Tocopilla port, more re-

search and expansion of the solar evaporation process.

The Export Import Bank has approved a \$25 million loan to assist in the development work.

### NH<sub>3</sub> Tank Bought By Kokomo Grain Co.

A 30,000 gallon anhydrous ammonia tank established by Olin Mathieson at Lincoln, Ind. has been purchased by the Kokomo Grain & Feed Co. of Kokomo, Ind. The firm planned to use eight to nine tank trailers to serve custom applicators during the peak spring season.

### Canada Naugatuck Adds Lab Facilities

Construction will soon begin on an extension of laboratory facilities at the Elmira, Ont. plant of Naugatuck Chemicals Div., Dominion Rubber Co., Ltd. The project will quadruple available laboratory space and is scheduled for completion by December.

### American Cyanamid To Sell Chemico Unit

Projected sale of Chemical Construction Co., a subsidiary of American Cyanamid Co., to Electric Bond & Share Corp. is reported. Chemico would continue to render design, engineering and construction services to Cyanamid and other clients as an independent but integral part of the EB&S organization.

It is planned to expand services to the chemical industry particularly in the field of organic chemicals.

Cyanamid has also announced formation of an engineering and construction division with Gen. Anthony C. McAuliffe as general manager, a unit that will have planning and operational responsibility for all major Cyanamid engineering projects. Certain employees of the present Chemico organization will join this new division.

### Shell Adds Movie For County Agents

Now available for showing by county agents is a new Shell Chemical Corp. film titled "Exit Grasshoppers" describing the pests, the damage they do and control with insecticides. The full-color, 10 minute, 16 mm sound movie includes recommended control practices for both crop and range land.

### Safety Dinner Held

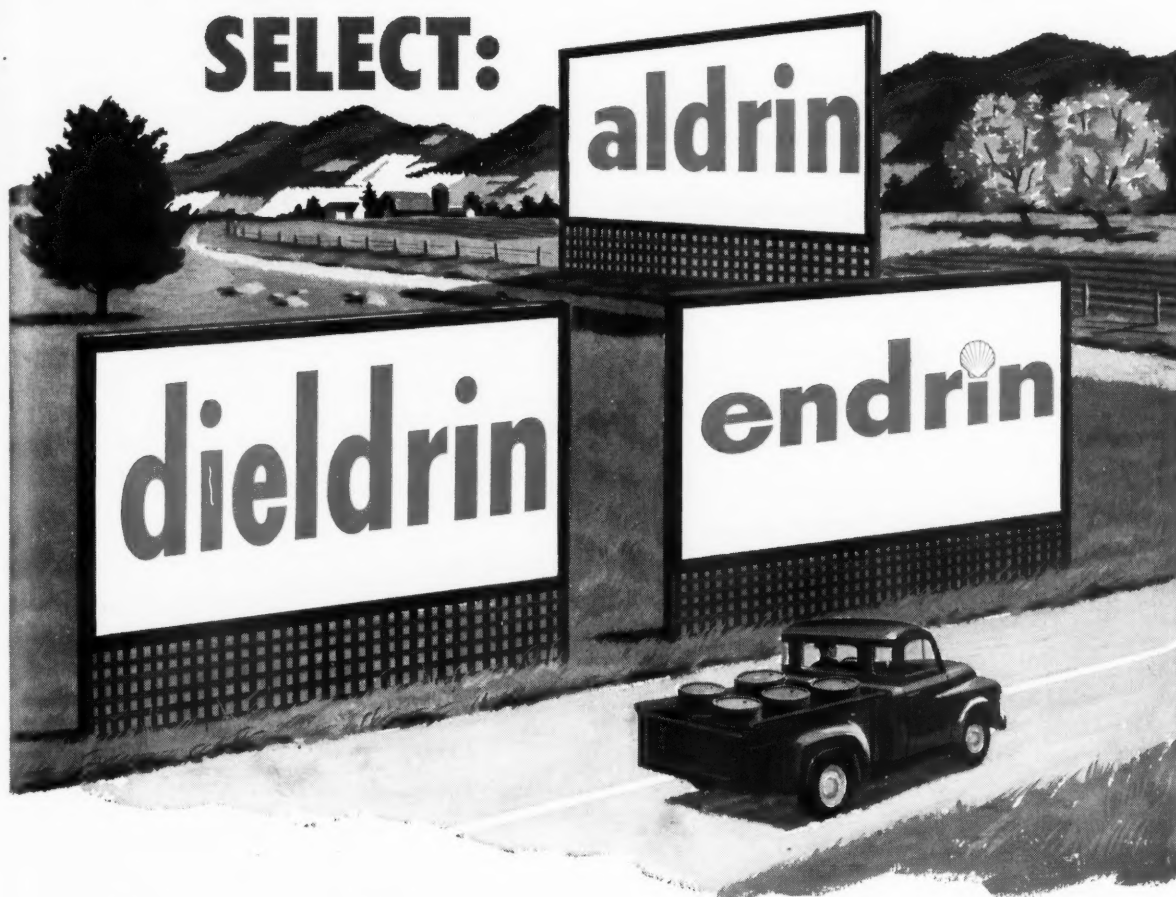
A barbecue dinner was held for the staff of Planters Cotton Oil & Fert. Co., Rocky Mount, N. C. during April in recognition of a 120 day accident free period. About 75 employees attended the affair.

## FEC Prize-Winning Exhibit



This backyard scene by Florida East Coast Fertilizer Co. won first prize at the 8th annual Miami Metropolitan Flower Show. It was prepared by Howard Bardsley, FEC's Homestead, Fla., office sales promotion manager.

# MORE growers than ever before SELECT:



## —for major crop pest control

### THE REASONS:

- Control for over 100 major crop pests
- Thoroughly tested and accepted on millions of acres of crops
- Heavy advertising and merchandising aids
- Technical assistance in solving special problems

EVERY YEAR the use of aldrin, dieldrin, and endrin grows by leaps and bounds. Growers are acting on the experience of other growers; using more and more aldrin, dieldrin, and endrin for the control of pests on cotton, corn, tobacco, vegetables, small grain and other crops.

Aldrin, recognized for its fast action and powerful high kill on foliage pests, is famous, too, as a soil insecticide. Dieldrin is recognized for uses where long resid-

ual action is important . . . dry, windy areas; where timing of an application is critical; as a household and lawn insecticide. Endrin has established itself as one of the best insecticides for the control of hornworm and budworm on tobacco. On cotton, it promises to be the top cotton pest control. It gets *both* boll weevil and bollworm, as well as other major pests.

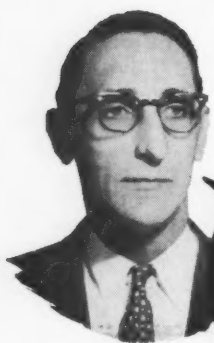
All three—aldrin, dieldrin, and endrin—have label acceptance by federal and state departments of agriculture.

Shell field representatives work constantly with growers, county agents, extension entomologists, state and federal workers to determine growers' needs. Information of this type is passed along to formulators. In addition to this valuable service, powerful, timely advertising *in your area* backs up Shell insecticides; helps build your sales.

**SHELL CHEMICAL CORPORATION**

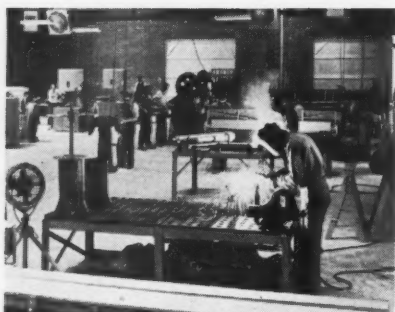
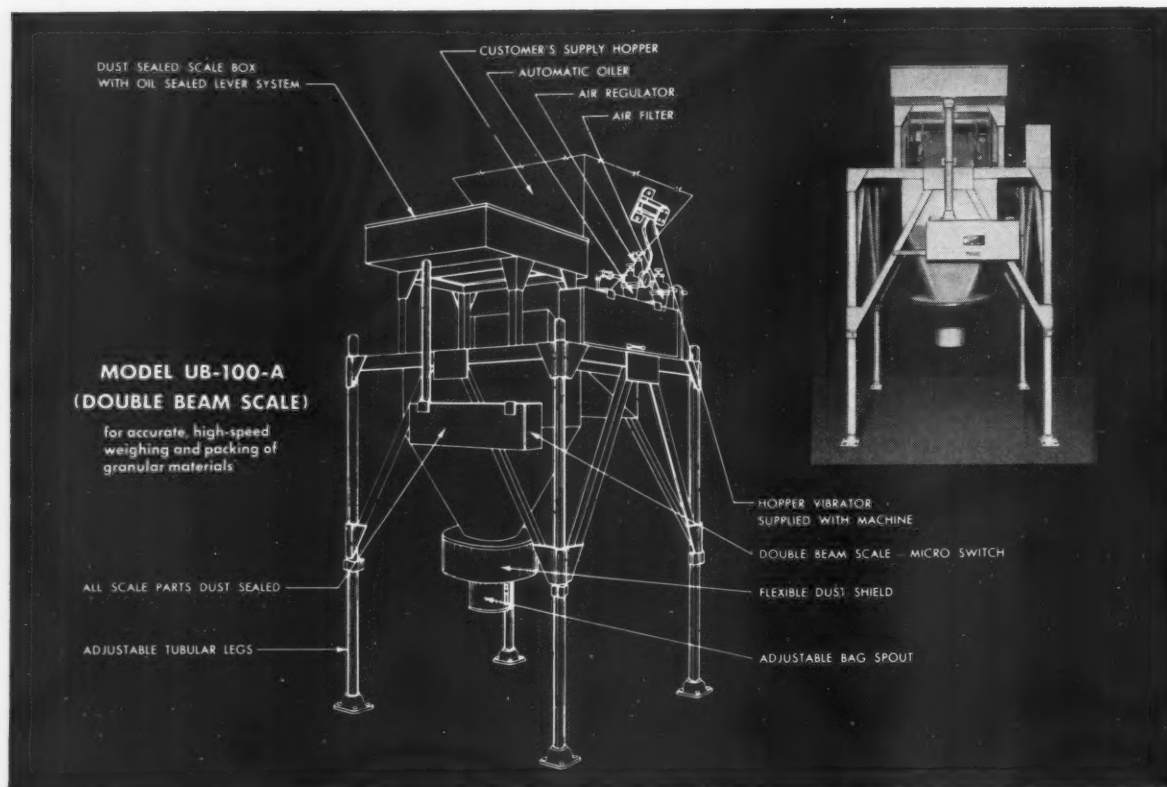
AGRICULTURAL CHEMICAL SALES DIVISION  
460 Park Avenue, New York 22, New York



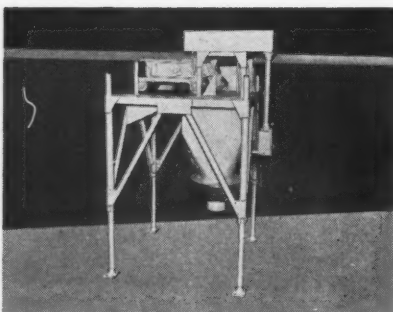


"Fertilizer manufacturers!  
Our savings have been  
so impressive we have  
installed five additional  
machines."

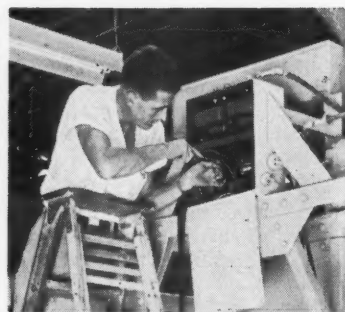
**"SINCE WE CONVERTED  
INCREASED  
SAVED 67%**



**THE PLANT THAT DEMAND BUILT**—Union's I & C Bagger is manufactured in this new Inglett & Corley plant, located in Augusta, Ga. Substantially increased capacity insures prompt delivery of all models.



**SIMPLIFIED INSTALLATION**—Shipped completely factory assembled and checked. Can be installed in hours. Adjustable legs may be compacted. Unit can be readily moved into position and quickly adjusted to the supply hopper.



**TRAINED UNION TECHNICIANS**—The I & C Bagger is installed and serviced by Union Bag machinery experts. These technicians are based so that they are available for immediate assistance if needed.



# TO UNION BAG'S I & C BAGGER, WE HAVE PRODUCTION BY 50%, ON LABOR"

C. L. Durham  
Plant Superintendent  
Dixie Guano Co., Laurinburg, N. C.

"The I & C Bagger has enabled us to up production to 50 to 60 tons of fertilizer per hour, compared to 35 to 40 tons in the past," says Dixie Guano plant superintendent C. L. Durham, "and we've been able to do it with one weighing operator instead of three. The I & C is as fast and efficient a bagger as I've ever encountered. Its performance has been little short of sensational."

## PEAK PRODUCTION

Dixie Guano's I & C installation has given the company's Laurinburg, N. C., plant an average production rate of 16 to 17 100-lb. Multiwalls per minute. "That's as fast as a man can get bags under the spout," says Mr. Durham.

## GAINS FOR OTHER FERTILIZER MANUFACTURERS

Fertilizer companies who have seen the I & C Bagger in

operation have bought more than 200 units in the past two years. Regardless of the size of their plants, manufacturers have found that the I & C Bagger reduces packaging labor costs, increases production, and can bring about important economies in the cost of the Multiwall bags themselves.

## SEE THE PROOF!

Ask for details on how one small plant is saving over \$50 a day in reduced manpower and increased production with a single machine . . . why a major producer has installed a dozen I & C Baggers . . . why another leading manufacturer has converted nine plants to the I & C.

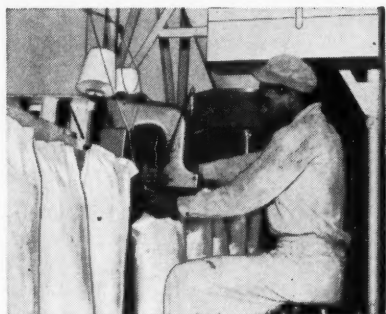
Almost certainly, the same opportunities for greater packaging efficiency are present in your own company. Get the facts today.

## ACCURATE, HIGH SPEED OPERATION

The I & C Bagger used by Dixie Guano, Model UB100-A—works in conjunction with a moving conveyor and sewing head.

The weighing and filling cycle is completely automatic. It begins when the bag filling operator pushes the starter button. This automatically delivers the fertilizer through the bag spout into the bags in an endless series of pre-weighed charges.

The filled weight drops each of the open mouth multiwall bags on to the moving conveyor which carries them to the sewing head.



**UP TO 20 100-LB. BAGS A MINUTE!** New high-speed packaging for the fertilizer industry! Twenty 100- or 50-lb. Multiwalls per minute; 400 to 500 tons in an eight-hour day. Completely automatic filling and weighing cycle.



PACKAGE ENGINEERING DEPARTMENT

## I & C Bagger

Automatic Weighing and Filling Machine for Open Mouth Bags  
Manufactured by **INGLETT & CORLEY, INC., AUGUSTA, GA.**

Exclusive Sales Agents:

**UNION BAG  
& PAPER CORPORATION**  
WOOLWORTH BUILDING, NEW YORK 7, N. Y.

## . . . Business & Management

### **MCA Awards 331 Safety Certificates**

Manufacturing Chemists' Assn. has, to date, awarded 331 certificates of safety achievement for 1955 to plants representing 32 companies. The awards are made annually to plant locations completing a calendar year without a lost-time accident.

Last year, reports MCA, the industry accident frequency figure dropped to 3.25 per million man-hours the lowest record in history and a slight improvement over 1954.

Included in the list of firms receiving certificates for 1955 are Allied Chem. & Dye Corp., American Cyanamid Co., American Potash & Chem. Corp., Atlas Powder Co., Commercial Solvents Corp., Dow Chem. Co., Du Pont, Food Machinery & Chem. Corp., B. F. Goodrich Chem. Co., Davison Chem. Co., Koppers Co., Monsanto Chem. Co., U. S. Industrial Chems. Co., Olin Mathieson Chem. Corp., Pennsalt Mfg. Co., Phillips Chem. Co., Shell Chem. Corp., Stauffer Chem. Co., Union Carbide & Carbon Corp., Victor Chem. Works and Wyandotte Chem. Corp.

### **Approve W. R. Grace, Cosden Pet. Merger**

Merger of W. R. Grace & Co. with Cosden Petroleum Corp. has been approved by the boards of both concerns and the proposal will be submitted to stockholders.

Basis of the agreement is exchange of 1.025 shares of Grace common stock for each share of Cosden common.

### **Plan Expansion of Chilean N Facilities**

Plans to step up expansion of Anglo-Lautaro Nitrate Corp. fa-

cilities have been announced following an agreement reached between the government and the nitrate industry. The firm is the largest producer of nitrate in Chile.

Terms of the agreement as passed by the Chilean congress increased to 40 per cent the government's participation in industry profits, a gain of 25 per cent over previous arrangements.

### **New Sulfur Plant Slated for Canada**

Jefferson Lake Sulphur Co. and Pacific Petroleums, Ltd., Calgary, Alta. have signed a contract for construction of a sulfur plant and sale of northwestern Canada's large new sulfur production.

Sulfur will be manufactured from hydrogen sulfide extracted from natural gas. Pacific Petroleums is now constructing an 18 million dollar gas processing plant which will remove hydrogen sulfide and liquid hydrocarbons from the gas and the two firms will construct sulfur extraction facilities. The plants will be located in the Peace river area near Fort St. John, B. C.

A Canadian subsidiary of Jefferson Lake will operate the 1.8 million dollar sulfur plant and market the product. Initial output will be 300 long tons per day and it is estimated that production could reach 500 to 600 tons in five years. Jefferson Lake will take over two million tons of sulfur in the present contract.

### **Trademarks Approved**

Approval of three new trademarks for Carl Pool Laboratory, San Antonio, Tex. fertilizer and soil conditioner products has been announced at Austin, Tex.—Carl Pool B-r 61, Carl Pool and Carl Pool Soil Sul.

### **USDA Grain Spray Contract to T-H Chem.**

Thompson-Hayward Chem. Co. was successful bidder on a USDA contract for 3,600 gallons of pyrethrum protective spray concentrate for treating corn and wheat stored in CCC-owned bins.

The concentrate will contain 33 per cent technical piperonyl butoxide, 3.3 per cent pyrethrins, 43.7 per cent petroleum oil and 20 per cent inert ingredients. Thompson-Hayward's price was \$24.46 per gallon delivered to points in nine states.

### **M&C Corp. Adds Western Distributors**

Four West Coast distributors have been added by Minerals & Chemicals Corp.—E. M. Walls Co., 353 Sacramento St., San Francisco 11, Calif.; Chemical-Additives Co., 3155 Leonis Blvd., Vernon 58, Calif.; Cordano Chemical Co., 56 SE Belmont St., Portland 1, Ore.; and D. B. Smith Co., 1016 1st Ave. S., Seattle 4, Wash.

Technically trained staffs and strategically located warehouse stocks will supplement current service.

### **Columbia- Southern Aids H. S. Teachers**

A new program has been announced by Columbia-Southern Chem. Corp. to stimulate local high school science teachers in acquiring advanced education in their fields.

Originally, the program will provide summer fellowships toward advanced degrees for teachers of chemistry, physics and mathematics at Magnolia High School in New Martinsville, W. Va. Each award will amount to \$500 plus tuition at an accredited institution of the teacher's choosing.

## Gains Reported in First Quarter '56

Continued gains were reported by most chemical firms during the first quarter of 1956.

Earnings for *Atlas Powder* rose 26 per cent reaching \$959,853, equal to \$1.28 a share on a two per cent increase in sales.

*Diamond Alkali* reported revenues of \$29,856,487 for the quarter, representing a considerable gain in sales and earnings of \$1.12 per share (up \$.45 from the 1955 quarter).

For *International Minerals & Chemical* (actually the third quarter of its current fiscal year), net earnings were \$2,575,390, up eight per cent while net sales declined five per cent to \$28,583,089 from the same quarter of 1955.

Earnings of *Michigan Chemical Corp.* totaled \$52,363 as compared to \$33,250 for the first quarter of 1955, a gain of 57 per cent. Sales were off slightly to \$1,489,282.

A 12 per cent gain in domestic and Canadian sales was noted by *Olin Mathieson* in a report showing income of \$144,340,677. Earnings were set at \$10,080,099, a 13 per cent gain over the 1955 period.

*Stauffer* sales and earnings were the highest for any first quarter in the company's history. Net sales were \$36,513,000 and earnings were \$3,013,000, up 15.4 and 19.5 per cent respectively.

## General Reduction Doubles Production

Production at the Macon, Ga. plant of General Reduction Co. has been doubled according to a recent announcement. Special equipment and added storage facilities will permit immediate shipment of the various Pikes Peak clays produced by the company.

Quality control operations have been increased and new production methods incorporated.

JUNE, 1956



## MURIATE OF POTASH for the PLANT FOOD INDUSTRY

THIS symbol stands for high-grade coarse and uniform Muriate of Potash (60%  $K_2O$  minimum). Southwest Potash Corporation provides a dependable supply of HIGH-K\* Muriate for the plant food industry.

\*Trade Mark

## Southwest Potash Corporation

61 BROADWAY • NEW YORK 6, N. Y.



## Fertilizer Materials for High Analysis Mixtures



### AMMONIUM SULFATE

New Premium Quality Phillips 66 Ammonium Sulfate contains 21% nitrogen, 23.8% sulfur. It is dry-cured to remove excess moisture, prevent caking. Uniform dust-free crystals flow freely, mix easily. Ideal for all analyses of mixed goods and for direct application. Available in bags or bulk.



### ANHYDROUS AMMONIA

Phillips 66 Agricultural Ammonia contains 82% nitrogen. It's a convenient, economical source of nitrogen for formulation of mixed goods. Tank car shipments are assured to Phillips contract customers by Phillips huge production facilities in the Texas Panhandle and at Adams Terminal near Houston.



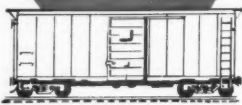
### NITROGEN SOLUTIONS

Get more N per dollar! There are three Phillips 66 Nitrogen Solutions for use in preparation of high-analysis fertilizers and the ammoniation of superphosphate. These solutions help to keep manufacturing costs low; help rapid, thorough curing.



### AMMONIUM NITRATE

Phillips 66 Prilled Ammonium Nitrate contains 33.5% nitrogen. The small, coated prills resist caking, handle easily. Depend on Phillips 66 Prilled Ammonium Nitrate for uniform free-flowing properties and top-notch crop response as a direct application material. It's an ideal companion high nitrogen fertilizer for your quality mixed goods.



### TRIPLE SUPERPHOSPHATE

Phillips 66 Triple Superphosphate contains 46% available phosphoric acid. Ideal for use in formulation of high-analysis fertilizers.



## PHILLIPS CHEMICAL COMPANY

A Subsidiary of Phillips Petroleum Company, Bartlesville, Oklahoma

#### Offices in:

ATLANTA, GA.—1428 West Peachtree Street  
AMARILLO, TEX.—First Nat'l Bank Bldg.  
BARTLESVILLE, OKLA.—Adams Bldg.  
CHICAGO, ILL.—7 South Dearborn St.  
DENVER, COLO.—1375 Kearney Ave.  
DES MOINES, IOWA—6th Floor, Hubbell Bldg.

HOUSTON, TEX.—1020 E. Holcombe Blvd.  
INDIANAPOLIS, IND.—1112 N. Pennsylvania St.  
KANSAS CITY, MO.—500 West 39th St.  
MINNEAPOLIS, MINN.—212 Sixth St. South  
NEW YORK, N. Y.—80 Broadway  
OMAHA, NEB.—WOW Building  
PASADENA, CALIF.—604 Citizens Bank Bldg.

RALEIGH, N. C.—804 St. Mary's Ave.  
SALT LAKE CITY, UTAH—68 South Main  
SPOKANE, WASH.—521 E. Sprague Ave.  
ST. LOUIS, MO.—4251 Lindell Blvd.  
TAMPA, FLA.—1214 South Dale Mabry  
TULSA, OKLA.—1708 Ulica Square  
WICHITA, KAN.—501 KFH Building

FARM CHEMICALS



## . . . Business & Management

### **AP&C Establishes Washington Office**

Offices have been established by American Potash & Chemical Corp. in Washington, D. C. to permit improved liaison with government agencies and the company's Department of Defense Programs.

Herbert W. Yeagley has joined the company to head the office which will be located in the Investment Bldg. at 15th and K Sts. Yeagley had been with Monsanto Chemical since 1942.

### **Grace Reports on '55 Chem. Activity**

W. R. Grace & Co. reports a successful year in 1955 for its Davison division with the new Bartow, Fla. triple superphosphate plant operating in excess of rated capacity.

In efforts to counteract the decrease in demand now affecting the fertilizer industry, new facilities were installed in five plants to produce improved grades of high analysis granulated materials. Similar work will be undertaken at two more plants this year.

Results of the first full year of operation for the Grace Chemical division were termed disappointing and did not approach budgeted figures.

Serious equipment difficulties occurred in the urea section although the ammonia section operated at about 90 per cent of capacity with a profit sufficient to offset the loss in urea.

### **More Rohm & Haas Stock on Market**

Shares of Rohm & Haas, common and preferred stocks will soon be offered to the public by the Justice Department. They represent part of the 34.5 per

cent of company stock owned by German citizens and seized in 1942.

The 79,213 shares of common and 4,810 preferred shares represent about 7.8 per cent of outstanding stock and at current prices will have a value of up to \$40 million.

### **Pennsalt Completes Ky. Fluospar Mine**

Completion of the Dyer's Hill fluospar mine in Crittenden county, Ky. has been announced by Pennsylvania Salt Mfg. Co. Further development of this and other mineral reserves in western Kentucky is expected to keep pace with continued expansion of Pennsalt's nearby Calvert City chlorine-fluorine facilities.

### **USDA Fertilizer Report Delayed**

Publication of USDA's fertilizer consumption report, usually a part of the June issue, has been delayed according to word from Walter Scholl. Dr. Scholl has completed the laborious work of compiling the tabular information and hopes to have the complete report prepared for publication in the July issue.

### **New Offices**

The Dow Chemical Co. New quarters for the St. Louis sales office are now located 10 S. Brentwood Blvd., St. Louis 5 (suburban Clayton), Mo.

Hollingshurst & Co., Inc. is now located at 60 E. 42nd St., New York City 17. Phone: MU 7-0916.

### **Research on Pink Bollworm Pays Off**

According to the National Cotton Council, the cotton industry's payoff from expanded pink bollworm research has already topped two and a quarter million dollars every year. The cumulative research expenditure is just over one million dollars since the expansion began.

The latest dividend came in an announcement from John White, Texas agriculture commissioner, that gin sterilization of cottonseed moving within the state is no longer necessary.

Despite this, warnings have been issued that financial support must be maintained. Arkansas completed its commitment last year. Georgia, Louisiana and Mississippi are expected to do so this year and Alabama and the Oscar Johnston Foundation in 1957. Texas will probably continue support of the program.

USDA is being urged to increase its appropriations each year by an amount at least equal to funds previously supplied on a short-term basis by several states and the Foundation.

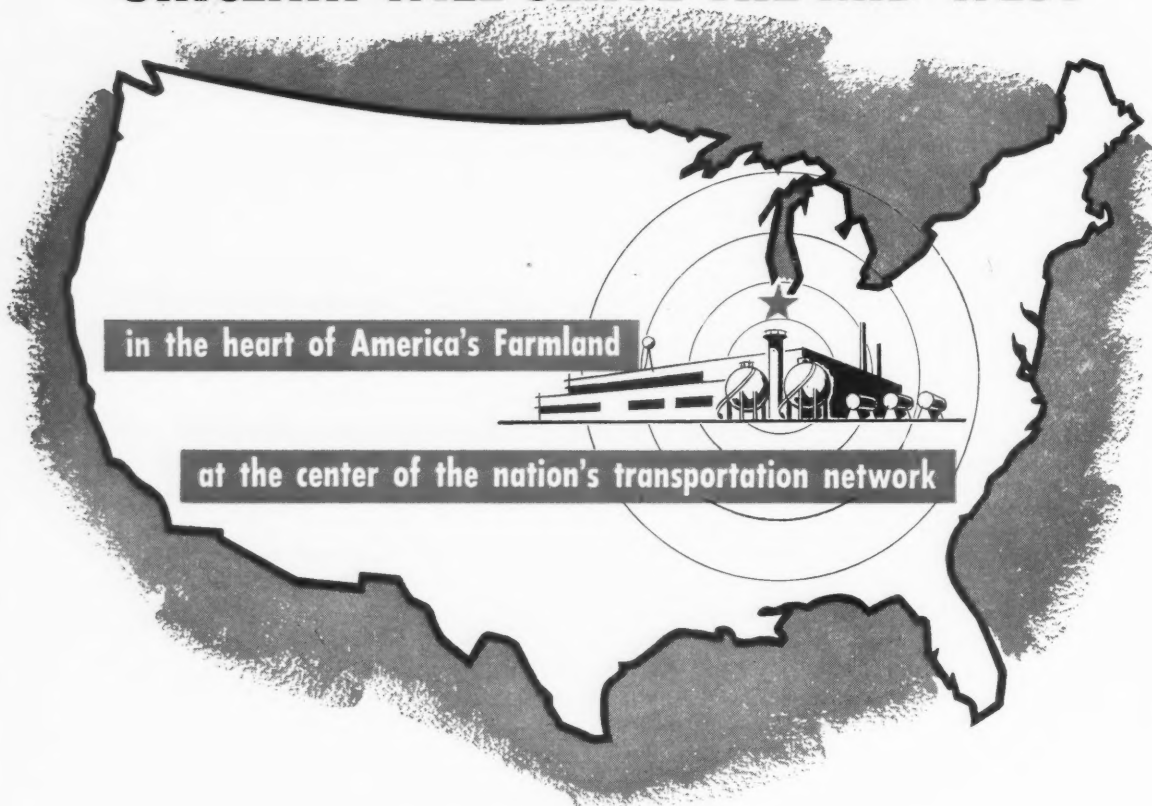
### **Olin-Mathieson to Buy Georgia Tract**

Arrangements have been completed by Olin Mathieson Chemical Corp. for purchase of a large tract of land at Brunswick, Ga. from Brunswick Pulp & Paper Co.

Equipment and facilities will be installed by O-M for rail and water movement of chlorine and caustic soda with operations expected to begin early in 1957. Pipelines for delivery of chemicals directly to the adjacent Brunswick P&P mill will be included.

# A new source for nitrogen chemicals

## SINCLAIR WILL SERVE THE MID-WEST



Strategically located in Hammond, Indiana, this ultra-modern plant will soon be on stream — producing high purity anhydrous ammonia and nitrogen fertilizer solutions for agriculture and industry.

The central location of this plant is of prime importance to you. It means *fast, low cost delivery* of your nitrogen needs via Sinclair's fleet of tank cars and tank trucks. Moreover, vast storage facilities will enable Sinclair to supply you with top quality products during your busiest periods.

For further information about how this new plant can meet your nitrogen supply problems, phone or write . . .

## SINCLAIR CHEMICALS, INC.

(Affiliate of Sinclair Refining Company)

600 Fifth Avenue, New York 20, N. Y. • Phone Circle 6-3600  
155 North Wacker Drive, Chicago 6, Illinois • Phone Financial 6-5900

## PEOPLE

**American Agricultural Chem. Co.** C. O. J. Wheeler has been named manager, Traffic Dept.

**American Potash & Chem. Corp.** Paul Staub and Rod Taft have been named district sales managers of two new offices,



**Staub**

opened as part of the firm's current development and expansion program. Portland, Ore., covering the states of Oregon, Washington, Idaho, Montana, Wyoming and British Columbia.

Former supervisor of potash sales, Rod Taft, will handle sales in northern and central California, Nevada, Utah and Colorado, from the newly-opened San Francisco office.



**Taft**

**Brea Chemicals, Inc.** New corporate officers have been announced by Homer Reed, president: Vice presidents—Robert S. Ray, manager of manufacturing, and Jack Tielrooy, manager of development; secretary and treasurer—Paul Foreman; comptroller—W. W. Philips; assistant secretary and assistant treasurer—Jay Linderman; and assistant comptroller and assistant treasurer—William C. Van Sicken.

**Columbia-Southern Chemical Corp.** E. Wayne Haley is appointed assistant to the president and elected vice president and director of Pittsburgh Plate Glass Export Corp.

**Commercial Solvents Corp.** Vice President W. Ward Jackson was elected president of the Armed Forces Chemical Association, New York Chapter, at the organization's recent annual meeting.

**George A. Dean, 83**, who for 30 years was head of the Kansas State College Dept. of Entomology, died on April 23 at a Manhattan rest home.

**Diamond Alkali Co., CHLORINATED PRODUCTS DIV.** Dr. M. J. Skeeters becomes manager of research; Alex Hlynski is named divisional group leader for research; and Robert J. Orlick is named sales promotion representative for agricultural chemicals. Dr. Skeeters and Hlynski will remain at the Painesville, O., Works, while Orlick will make his headquarters at Cleveland.

**SODA PRODUCTS DIV.** C. J. Ott is new administrative assistant.

**Dow Chemical Co.** J. W. Britton has relinquished his duties as a departmental production manager in the Midland Div. to devote full time to company-wide responsibilities as manager of agricultural chemicals. Ralph F. Prescott succeeds him as departmental production manager and as a member of the Midland Div. operating board.

**Mack Drake**, research professor of chemistry at the University of Mass., was presented a bronze metal and a \$500 award at the annual meeting of the New York Farmers in New York.

The award was made to Drake for research on the chemistry of plant roots.

## NATIONAL CAL-MAG OXIDES



**MgO 40.39**  
**CaO 58.07**  
**TNP 203.88**

Superior for Dehydrating, Neutralizing, and Curing factors in the preparation of effective fertilizers.

### PROMPT SHIPMENTS

Three railroads serve our Carey, Ohio, plant — assuring prompt delivery—everywhere.

We Also Produce  
**DOLOMITIC  
HYDRATED  
LIME (165 TNP)**  
and  
**KILN DRIED  
RAW DOLOMITE  
(107 TNP)**  
Screened to size

**Write  
FOR  
COMPLETE  
INFORMATION  
TODAY—  
Dept. FC**

*The* **NATIONAL  
LIME and STONE CO.**  
General Offices  
FINDLAY, OHIO

## . . . People

**Escambia Bay Chemical Corp.** Election of R. U. Haslanger, vice president and general manager, to the board of directors recently was announced.

**Food Machinery & Chemical Corp., CHEMICAL DIVS.** William D. Morrison has been named to the new post of manager, foreign chemical development.

Appointment of Arthur S. Weygandt as manager of FMC Chemicals Central Development Dept. also was announced.

**W. R. Grace & Co.** Charles E. Wilson has retired as chairman of the board of directors. J. Peter Grace, president, reported that Wilson has expressed a desire to undertake tasks of public service which he feels have been long deferred.

**International Min. & Chem. Corp.** New controller is Rune E. Swanson, former assistant controller of U.S. Gypsum Co.

Max H. Forster has been named to the newly-created position of management development supervisor.

**Michigan Chemical Corp.** Robert Velgos has joined the research staff of the firm.

**Northern Chemical Industries.** Appointment of Donald I. Fangmeyer as general sales manager recently was announced. Since 1949 he has held various sales positions with Olin-Mathieson Chemical Co. He will locate at the N.C.I. Searsport, Me., plant.

**Pennsylvania Salt Mfg. Co.** Dr. George McCoy has been named manager of the Research & Development Dept.

**Phillips Pacific Chemical Co.** Recently named plant superin-

tendent of Coulee ammonia plant is W. D. Payton, according to K. S. Adams, chairman, and Paul Endacott, president of Phillips Petroleum Co. and its wholly owned subsidiary, Phillips Chemical Co., operator of the plant. Phillips Pacific Chemical Co., which is building the plant, is jointly owned with Pacific Northwest Pipeline Corp.

The Coulee plant, located near Kennewick, Wash., is scheduled for completion late this year.

**Prentiss Drug & Chemical Co.** W. J. Fowler of the Whitaker Oil Co. has been named sales representative for Prentox household and industrial insecticide concentrates in Ga., Ala. and Fla. He will headquarter at 1561 Marietta Rd., N.W., Atlanta, Ga.

**Shea Chemical Corp.** Five promotions were recently announced: E. P. Madsen to senior vice president; James D. Hogan and J. B. Sutcliffe to vice presidents; G. C. Taylor to controller; and Vincent H. Shea, Jr., to general purchasing officer.

**J. R. Simplot Co.** Robert E. Long has been transferred from the firm's Fertilizer Div. at Pocatello, Ida. to the general office at Boise, Ida. as chief engineer.

**Southern Nitrogen Co.** Treasurer and controller, M. G. Woodward, has been elected a



Woodward

director of the firm. Southern Nitrogen is presently constructing a \$14 million petrochemicals plant at Savannah, Ga. Woodward was named treasurer and controller in December, 1955.

**Stauffer Chemical Co.** Wayne Kincannon has been

named manager of the North Little Rock, Ark., plant.

**U. S. Potash Co.** G. Burke Garrette has joined the firm as southern sales representative. A graduate of Virginia Polytechnic Institute, he has served in the U. S. Air Force and as a technical sales representative for American Cyanamid Co.

**Velsicol Chemical Corp.** Newly appointed director of sales for Velsicol International Corp. is James A. Winter, according to E. T. Collinsworth, Jr., president of the new firm which will handle Velsicol's expanding foreign trade activity.

Winter has been active in the chemical industry for the past 25 years and has been with Velsicol Chemical for seven years.



Easter

Concurrently, Collinsworth announced appointment of Stephen S. Easter as director of technical service for Velsicol International. Easter has been with the parent company as a member of the entomological staff for the past three years.

Personnel promotions at the Velsicol Marshall, Ill., plant: Wilson C. Keyes to assistant plant manager; John Rex to production superintendent and Robert Tiefel, to assistant superintendent of the reduction area.

**Westvaco Mineral Products Div., FM & C.** Thomas M. Craig becomes assistant product manager for phosphates with headquarters in New York; James A. Wedlin and Ralph A. Skaar have been named sales representatives.

FARM CHEMICALS



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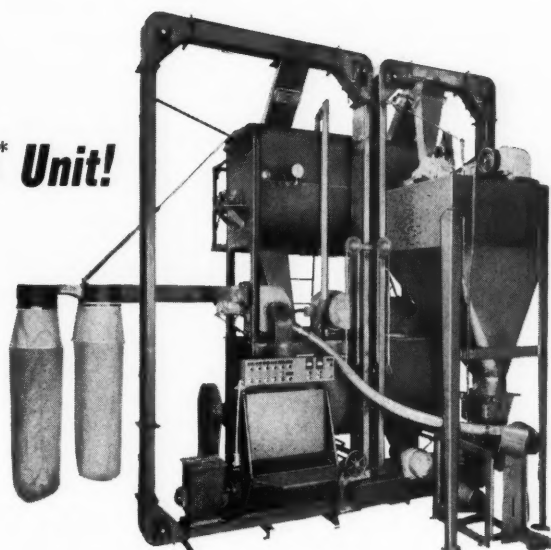
### Complete Plant for Insecticide Production — in one compact, Ready-to-Run\* Unit!

**Proven design**—engineered and packaged in one unit.

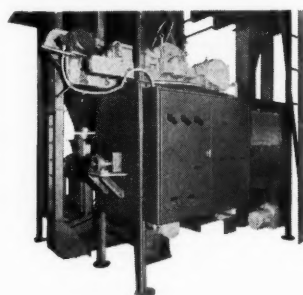
**Low setting-up costs**—no engineering, no guesswork, no delays and nothing to add.

**High production capacity** in small space. Dual 40 cu. ft. model compounds two to four 1200 to 1500 lb. batches of dust concentrate per hour or six to eight batches of field strength dust. Takes only 9' by 12' space with 13' headroom—on one floor in existing buildings. Standard 40 cu. ft. model has same production capacity of field strength dusts. Both dual and standard Uni-Blenders made in 56 cu. ft. models to handle 1600 to 2000 lb. batches.

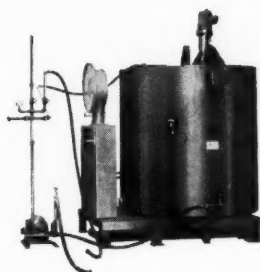
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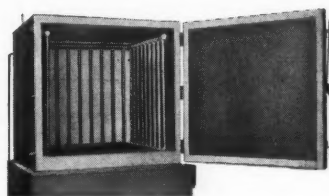
R.T.R.\* Uni-Blender is a single unit, small space insecticide production plant. Dual model shown—mixes, blends, packages insecticide dusts in concentrated or field strength form, from ingredients requiring reduction in particle size or liquid impregnation.



Latest design dust-tight control panel made by a nationally-known manufacturer, view from opposite side of Uni-Blender. At top is 3TH Mikro pulverizer for grinding chemicals up to 95% + 325 mesh.



Toxicant measuring and blending tank, water jacketed with emersion heaters in the jacket for temperatures to 212°. Stainless steel inside tank is replaceable. Sizes 75, 200, 600 and 1000 gallons.



Open door of melt oven reveals heating tubes for steam at 125 psi to give 350° + oven temperature. For those chemicals, such as Toxaphene, used in making concentrates. Melting time, 30 to 45 minutes.

Write for new catalog and technical bulletins.

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Please send technical bulletins on these Poulsen Ready-to-Run Uni-Blender plants:

- ☐ R.T.R. Uni-Blender Insecticide Compounding Plants
- ☐ R.T.R. Uni-Blender Liquid Toxicant Formulating Plants
- ☐ Please send new Poulsen Catalog for 1956.

Name .....

Address .....

City ..... State .....

# GOVERNMENT

## ICA Authorizations

**Thailand.** \$20,000—fertilizers for livestock improvement and disease control project (PIO/C No. 93-13-033-5-60095). Source: world wide. Terminal delivery date: August 31. Procurement

will be carried out through the Dept. of Army.

\$200,000 — agricultural pesticides (PA No. 93-236-99-A6-6002). Contract period: April 30 to October 31. Source: world-wide. Terminal delivery date: April 30, 1957.

\$100,000—phosphates and other fertilizer materials (PA No. 93-235-99-A6-6001). Contract period: April 30 to October 31. Source: world wide. Terminal delivery date: April 30, 1957.

**Turkey.** \$800,000—fertilizers (PA No. 77-99-A5-6005). \$500,000 in nitrogeous fertilizers and \$300,000 in phosphatic fertilizers. Contract period: April 12 to August 31. Source: world wide. Terminal delivery date: October 31, 1956.

\$200,000—nitrogeous fertilizers (PA No. 77-230-99-A5-6009). Contract period: April 30 to August 31. Source: world wide. Terminal delivery date: October 31.

**Vietnam.** \$96,700—agricultural pesticides, hand-compression sprayers and misc. supplies for malaria control project (PIO/C No. 30-51-029-5-60236). Source: world wide. Terminal delivery date: August 31. Procurement through Emergency Procurement Service, GSA.

Unless otherwise specified, procuring agency is assumed to be the recipient country, its authorized agents or importers.

## A. L. Taylor Heads Nematode Research

Now in charge of research on nematodes at the Beltsville station is Albert L. Taylor, succeeding Dr. Gotthold Steiner who retired in April. Taylor joined USDA in 1935 as a junior nematologist in charge of the Tifton, Ga. field laboratory.

## New Ag Attache Sent to Thailand

Elmer W. Hallowell has been named agricultural attache at Bangkok, Thailand, replacing Graham S. Quate who is retiring from government service. Hallowell had been chief of the Tobacco Analysis Branch, Foreign Agricultural Service.

## Book Department

**Applied Entomology, 5th Ed. Fernald & Shepard. \$7.00**

New revision deals not only with insect control but also provides an introduction to insect classification and other phases of general entomology. Chapters on insecticides have been completely revised, new information is included on biology and distribution of particular insects and insect physiology is given increased emphasis.

**Soil Fertility, C. E. Millar. \$6.75**

Treats all aspects of soil fertility with emphasis on the plant itself. Has full information on all major plant foods and the important trace elements. Problems of saline and southern soils are considered at length and regional cropping systems are discussed.

**Phosphoric acid, Phosphates and Phosphatic Fertilizers, 2nd Edition. ACS Monograph No. 34. \$15.00**

Written in direct, readable style, by W. H. Waggaman and 17 outstanding authorities, the book is a leading source of information on all phases of the chemistry, technology and uses of phosphorus. Of value to those engaged in production and processing of phosphate rock and to plant superintendents and executives of industries in which phosphorus is of importance. Covers sources of rock, processing, production of phosphorus compounds.

**Commercial Fertilizers, 5th edition. G. H. Collings. \$8.00**

Completely revised with new material and many modifications covering the recent important advances in production and use of fertilizers.

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# VIEWING WASHINGTON

with Farm Chemicals  
Washington Bureau

## on agriculture

**The new farm bill—Agricultural Act of 1956**—will give some lift to spendable farm income this year, but not enough to half the five-year down-trend. Most of the lift will come from moderately higher price supports brought about directly or indirectly by the new law.

**The \$1.2 billion Soil Bank program requested by Ike** is the chief feature of the new law. As it is written, a limited number of farmers will receive payments this year. Full operation won't begin until 1957 crops—starting with winter wheat going into the ground this fall.

**Among farmers who may get Bank payment checks on this year's crops** are Midwest corn growers and Northeastern tobacco producers, particularly those who held back acreage. Secretary Benson may also permit a limited "plow up" on some crops—especially soybeans and some corn which haven't been in the ground long. For operational details see Soil Bank article in the May issue.

### Here, in brief, are the major features of the 1956 farm act:

**Feed grains:** Support for oats, rye, barley and grain sorghums in 1956 are raised to 76 per cent of parity. This boosts support from 59 cents to 65 cents a bushel for oats; 93 cents to \$1.02 for barley; \$1.16 to \$1.30 for rye, and from \$1.80 to \$1.97 a hundredweight for grain sorghums. No acre allotments will be in effect. Support for corn grown outside the commercial area goes from \$1.21 to \$1.24 a bushel.

**Indirect benefits for 1956 for farmers,** forced on the Administration by the vetoed bill, boost corn support for allotment compliers from \$1.40 to \$1.50 a bushel; set up a new \$1.25 per-bushel support for farmers who don't comply; raise wheat support from \$1.81 to \$2 a bushel; and keep cotton support at higher levels than otherwise would have been in effect.

**Corn:** 1956 allotments are increased from 43.4 million acres to 51 million. Each commercial area farmer will get an approximate 15 per cent increase in allotment. Next year, price support will be offered only to farmers who put 15 per cent of equivalent corn acres into the Bank.

**Cotton:** Allotments for 1957 and 1958 are frozen at no lower than this year's 17.4 million acres, plus 100,000 acres for small farmers. The government is authorized to sell up to 5 million bales of cotton abroad at competitive world prices.

**Rice:** Allotments are frozen for 1957 and 1958 at this year's level of 1,650,000 acres. The Agriculture Secretary is given authority to set up a two price system for rice—which would set a support level for rice sold domestically and a lower one for that sold in export.

**Price support in general:** The Administration's flexible support formula for corn, wheat, cotton, rice and peanuts, ranging between 75-90 per cent of parity, goes unchanged. But the new law puts a freeze on a formula which would reduce some of these five per cent next year.

**Federally-sponsored farm research gets a big shot in the arm for the next 12 months.** Excluding Soil Bank funds (appropriated separately), USDA is getting a record appropriation of over \$2 billion. Of this, research is getting more than \$130 million, a new record, almost  $\frac{1}{4}$  more than for the current year.

**Funds for research done by the Department itself** are increased from almost \$40 million to more than \$50 million. Payments to state experiment stations go up from \$25 million to above \$30 million.

# VIEWING WASHINGTON

## on business

### **A Commission on Increased Industrial Use of Agricultural Products**

will be appointed shortly by President Eisenhower under terms of the new farm law. Purpose of the five-member study group is to recommend to Congress, before June 15, 1957, steps to be taken to "bring about the greatest practical use for industrial purposes of farm products not needed for human or animal consumption, including, but not limited to, use in the manufacture of rubber, industrial alcohol, motor fuels, plastics and other products." An appropriation of \$150,000 is authorized for its study.

**It is expected that the view of the chemical industry** will be solicited and that the results of the study, first of its kind to be made by the government—will be made available to the industry.

**Farm chemicals are getting a big indirect sales boost this year** from the Federal government. A recent much-publicized report put out by the Agriculture Department underscores fertilizer and pesticides as the top buys for farmers.

**The farm fertilizer price index this spring declined 2 per cent** from a year ago. It now is 3 per cent below the 1953 peak, 5 per cent above the 1947-49 level, and 48 per cent above the 1935-39 level.

**"Prices for several important pesticides,"** says the USDA, "are slightly lower than they were last fall or a year ago." Manufacturers' prices of BHC, DDT, calcium arsenate, 2,4-D and 2,4,5-T were down lower although an important exception is the increase of about 60 per cent for copper sulfate.

**The U. S. Chamber of Commerce is driving hard to clip the wings of TVA.** It has urged Congress to order TVA to discontinue all chemical research, turn fertilizer research facilities over to the Agriculture Department, and sell its fertilizer production facilities to private enterprise. Failing in this, the Chamber recommends TVA sell chemical fertilizers at prices which would include all costs, including taxes.

**Now that antibiotics are permitted on fresh poultry** to extend shelf-life by minimizing bacterial effect—next big push will be to obtain government approval for use on fish. But it will be more difficult to tell how much fish would be saved from spoilage by antibiotic sprays—although it could be considerable.

**One illustration of the difficulty of pinning down spoilage** is a comment by A. W. Anderson, chief of the Bureau of Commercial Fisheries. Anderson says in his efforts to get an answer to the spoilage question, he "drew estimates of spoilage of from 2 per cent to 20 per cent from his experts at a staff meeting on the subject."

**The wide range of spoilage estimates is explained** by the differences in rate of spoilage between different fish species, time of season caught, and other factors, says Charles Butler, Section of Technology chief.

**"Under worst handling conditions spoilage of fish** for inedible purposes such as industrial oil and fish meal could go as high as 20 per cent, depending on the economics involved in attempting to cut spoilage of this kind of fish," Butler says.

"On the other hand, spoilage of fresh fish for edible purposes could go as high as 10 per cent, depending on the species of fish, time of year caught, and economic factors," says he. "This would be a high figure, however, for such costly fish as salmon and redsnapper where 2 per cent would be a more likely figure because they are too valuable to be allowed to spoil."



## Chemicals

### 179—Heptachlor Folders

Two Velsicol folders cover the use of heptachlor in control of cotton insects, cutworms and armyworms. The pests and their feeding habits are described and Velsicol reviews the suggested methods of control with Heptachlor formulations. For a copy of each

CIRCLE 179 ON SERVICE CARD

### 180—Using Bromofume

American Potash & Chemical has issued a bulletin on the use of its Bromofume soil fumigant in controlling nematodes in the growing of numerous trunk and field crops. Included is information on proper soil preparation, methods of application and recommended dosages.

CIRCLE 180 ON SERVICE CARD

### 181—Min. & Chem. Corp.

The story of Minerals & Chemicals Corp. is well told in a 16-page brochure issued in connection with occupation of the firm's new administrative offices and research center at Menlo Park, N. J. Explaining the origin and formation of the company and its subsidiaries, it also reviews producing operations, describes the background of key management personnel, provides a roster of distributors and covers the new Menlo Park facilities.

CIRCLE 181 ON SERVICE CARD

### 182—African Pyrethrum

A small booklet issued by African Pyrethrum Development will bring you up to date on the basic sources of this important toxicant. It describes developments now taking place in British East Africa and the Belgian Congo including erection of extraction facilities.

CIRCLE 182 ON SERVICE CARD

### 183—BHC in Pellets

Newest in the line of Stauffer products for formulators is technical BHC in pellets. Made specifically to solve grinding problems common to other BHC concentrates, the pellets grind down easily without gumming or sticking. The only 24 gamma technical material available, the pellets will improve your production and product quality. For complete information

CIRCLE 183 ON SERVICE CARD

### 184—N-Dure Solution

Latest addition to the Nitrogen Div. line is N-dure, a urea-formaldehyde solution now being produced at South Point, Ohio. It is designed to enable you to produce granular-type plant foods containing long-lasting organic nitrogen for use on lawns, gardens and specialty crops. The clear, golden liquid (12 per cent N) will permit you to make mixtures containing a wide variety of ratios between water soluble and insoluble nitrogen. For a descriptive folder

CIRCLE 184 ON SERVICE CARD

### 185—Using Vermiculite

A new publication of the Vermiculite Institute on uses of this material in agriculture includes a description of its appli-

JUNE, 1956

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## Reader Service

cation as a fertilizer conditioner. The inert, fireproof material weighing only 10 pounds per cubic foot is processed in some 40 plants in the US and Canada.

CIRCLE 185 ON SERVICE CARD

### 186—Nu-Iron Compound

An economical compound, Nu-Iron, is now offered by Tennessee Corp. for correction of iron chlorosis and for stimulation of plant growth. Easily applied as spray or dust to the foliage it is compatible in mixtures or combination applications with common spray or dust materials. Safe to foliage, it is not affected by soil pH and has excellent storage stability and shelf life. Data and prices are available to formulators, distributors and repackagers.

CIRCLE 186 ON SERVICE CARD

are included on a variety of items including stoneware chamber sprays, atomizing nozzles, gas scrubbing nozzles, solid spray nozzles, strainers, pressure regulating valves and other items in the Monarch line.

CIRCLE 188 ON SERVICE CARD

### 189—Butler Plants

A new Butler Mfg. liquid fertilizer mix plant package includes mixing equipment, aqua conversion system, storage facilities and, if desired, the building to house an office. Plants may be obtained as a turn-key installation or as ready-to-install units for which you supply only site and labor. Each plant can process 10 to 15 tons per hour depending on the fertilizer grade. For information

CIRCLE 189 ON SERVICE CARD

### 190—International Mixers

Both conical and ribbon mixers are produced by International Engineering in a wide variety of capacities and specifications. The conical units, ranging in capacity from 25 to 10,000 lbs., include four unique features or actions—end-to-end tossing, scattering, rolling and folding and anti-segregating to blend any free flowing solid rapidly and efficiently. Ribbon mixers are fitted with outer and inner helical ribbons, oppositely pitched and equipped with any of a variety of drives. The lid section is held dust tight by swing bolts and a dust-tight non-clogging wheel or lever-operated slide gate valve is fitted in the bottom of the trough. For a descriptive bulletin.

CIRCLE 190 ON SERVICE CARD

### 191—C&I-Stengel Nitrate

Chemical & Industrial Corp. offers complete information on the new spherical form ammonium nitrate produced by the CSC Stengel Process, now available through C&I. The firm recently completed facilities at the Sohio Chemical plant, including a 180 ton per day nitric acid plant and 250 ton per day ammonium nitrate solutions unit.

CIRCLE 191 ON SERVICE CARD

### 192—Andrews Mixer

The new Andrews mixer for pulverized mixed fertilizer is delivered as a unit, requiring only wiring of the motors, and delivers seven tons per hour. A vertical screw elevates and discharges ingredients

### How to use the READER SERVICE CARD

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- Print or type your name, position, company and address.
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## Process Equip.

### 187—Sturtevant Pulverizer

Sturtevant Mill's rotary pulverizer is engineered to grind up to 35 tons of tailings per hour to keep your granular or powdered fertilizer unit moving at full capacity. There is no overload stoppages or clogged grates so daily accumulation of oversized lumps is not a problem. "Open-Door" accessibility makes cleaning quick and easy. For a bulletin

CIRCLE 187 ON SERVICE CARD

### 188—New Monarch Catalog

Industrial spray nozzles and accessories are completely described in a new Monarch Mfg. Works catalog. Capacities, construction, dimensions and weights

into the mixer and elevates the finished goods to a two-way spout for discharge. Lumps are broken by hammers in the bottom of the hopper. For information  
CIRCLE 192 ON SERVICE CARD

### 193—Thayer Batch Scale

The latest Thayer batching scale, Model 700N, is designed to handle dusty, corrosive or abrasive materials. A patented plate leverage system supports the scale platform, levers and weigh beam eliminating all knife-edge pivots. Various sizes handle 100 lbs. to 100 tons per hour with average accuracy of 1/4 of one per cent. Controls can be furnished for interlocking with your existing system. For bulletins and survey sheets

CIRCLE 193 ON SERVICE CARD

### 194—Nauta Mixer

Uniform mixing of any number of materials, similar or entirely different in characteristics is possible with Nauta mixer from Buřlovak Equip. Div., Blaw-Knox. Small quantities can be blended with large volumes, small amounts of liquids added to dry materials and solids can be dissolved in a liquid media. A catalog is available.

CIRCLE 194 ON SERVICE CARD

### 195—Industrial Fans

A new line of industrial fans designed to handle corrosive and explosive fumes, abrasive dusts and dirt-laden air is featured in a Robbins & Myers bulletin. Photos, drawings and charts illustrate features of the fans which are available in two types—for use in normal or high temperatures. The fans have air delivery ratings to 26,000 cubic feet a minute.

CIRCLE 195 ON SERVICE CARD

### 196—Armored Rotameters

The complete line of Brooks armored rotameters are described in a new 12-page color bulletin. Included are details of design and construction, capacity charts and principles of operation for the entire line. Also described are all types of rotameter extensions—including indicating and electric transmitting units. For a copy

CIRCLE 196 ON SERVICE CARD

## Materials Handling

### 197—Three TractoLoaders

Tractomotive Corp. produces a line of TractoLoaders to fit all bulk handling

jobs—the highly maneuverable TL-6 for fast handling in confined areas, the TL-10 for big capacity, general purpose use and the TL-12 designed for excavating-loading. For a 12 page booklet

CIRCLE 197 ON SERVICE CARD

### 198—New HO Payloader

Frank G. Hough has introduced a new and larger model HO Payloader featuring a "no-stop" powershift transmission and torque converter, planetary axles and torque-proportioning differentials. The latter feature combats wheel slipping, adding to the effectiveness of four wheel drive. Heaped capacity is 2 1/4 yards and struck capacity 1 3/4 yards. It is available with either gasoline or diesel power. For a descriptive folder

CIRCLE 198 ON SERVICE CARD

### 199—Bulk-Flo Efficiency

Link-Belt's Bulk Flo unit combines three vital functions, moving materials horizontally, vertically, on an incline or combinations of all three. Two basic styles are available—one for lumpy and the other for free-flowing materials. A wide range of designs can be engineered to fit your requirements. For a data book with complete information

CIRCLE 199 ON SERVICE CARD

### 200—Clarklift Line

Early this month Clark Equipment will introduce Clarklift line of fork-lift trucks representing a major advance in design. Exclusive features include self-adjusting brakes, balanced swingup hood, solid tire models with drive and steer wheels of the same diameter, lift-tilt controls on the steering column and optional radiator screens for dusty operations. For complete information

CIRCLE 200 ON SERVICE CARD

### 201—Plastic Pipe

Two types of unplasticized polyvinyl chloride pipe and fittings are described in a new product bulletin issued by Carpenter Steels' Alloy Tube Div. General descriptions of the normal and high impact grades are provided along with the specific advantages of each. The PVC pipe is resistant to the action of organic and inorganic acids, alkalis, alcohols, corrosive gases and fumes and other materials.

CIRCLE 201 ON SERVICE CARD

### 202—Power Scoop

Unloading time can be cut 30 to 50 per cent with a Jeffrey automatic power scoop, claims the manufacturer. One operator can empty a box car in two to three hours. The light weight scoop is easily handled and is controlled with a button built into the handle. Motion stops the instant the grip on the handle is released, assuring greater safety. For a descriptive bulletin

CIRCLE 202 ON SERVICE CARD

## Packaging

### 203—New Sewing Heads

Union Special Class 14500 bag closing machine sewing heads have been replaced with a new class 53600 series designed for use on cotton, burlap, onasburg and one to 3-ply paper sacks. All units are single needle, high throw machines with a 50 per cent increase in rated speed. Seven individual styles are available—three for mounting on auxiliary bag machines, the others for suspension with variations of counterweight or top lock balancer. For more information

CIRCLE 203 ON SERVICE CARD

## Application

### 204—General Metals Units

Literature is available from General Metals describing its complete line of nitrogen solutions applicator and transport equipment. Included in the line are wagon mounted nurse tank units, truck transports, tractor mounted applicators for both surface and sub-surface application, trailer mounted applicators in sizes from 75 gallon tractor mounted models to 1,000 gallon truck units. Three types of applicator pumps are available as standard equipment.

CIRCLE 204 ON SERVICE CARD

## Storage

### 205—Butler FLX Units

Butler Mfg. has introduced new vertical storage tanks featuring plastic Flexi-Liners and designed for storage of phosphoric acid and other non-pressure corrosive liquids. The FLX units are available in several sizes including 8,600 and 12,000 gallon capacities. Tanks are fabricated of hot rolled steel and are furnished with two outlets in any combination of 2", 3" and 4" sizes. For information

CIRCLE 205 ON SERVICE CARD

## Miscellaneous

### 206—Dusty Roads

Columbia-Southern has issued a small 8-page booklet on dust control with calcium chloride that may be of assistance if you are concerned with the condition of your plant's dirt roads. It explains the approved method of applying this chemical for control of dust around home areas, business places, on roads and recreation areas.

CIRCLE 206 ON SERVICE CARD

**See pages 56, 58, 59 for information on these Reader Service numbers—**

207—Bemis Packer-Ette

208—Krause Kit

209—S/S Relief Valve

210—Pace-Maker Trucks

211—Dempster Pump

212—Strength End Sacks

213—St. Regis Manuals

214—Buckels Elevators

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## Associations & Meetings

### Formulators Group Hits Pricing Policies

At the 3rd annual meeting of the Carolinas-Virginia Pesticide Formulators Assn. held in Myrtle Beach, S. C., May 7-9, a resolution was unanimously approved censuring unnamed suppliers for their pricing policies.

The statement noted that "substantial discounts are enjoyed by certain firms who are competing at the same level and in the same territory as members of the association. It requested an investigation of the inequitable pricing" by proper authorities.

George Simches, Planters Chemical Corp., was named vice president of the group to fill the unexpired term of J. B. Maddrey, also of Planters Chemical. Maddrey resigned because of ill health.

South Carolina, North Carolina and Virginia were each awarded \$100 by the association to assist in developing 4-H Club entomological activity.

### PNPFA Prepares For 7th Conference

A full program has been prepared for Pacific Northwest Plant Food Assn.'s 7th annual regional fertilizer conference scheduled for the Chinook Hotel, Yakima, Wash., June 28 to 30.

Included in the program are three conference sessions, a banquet and a machinery exhibit and fertilizer placement demonstration.

### Southern Soil Men To Meet in Atlanta

On November 2, Southern soil scientists and fertilizer industry representatives will hold a Work Conference at the Atlanta Biltmore Hotel, Atlanta, Ga. Under discussion will be new research

findings in agriculture and problems of mutual concern to the land-grant colleges, state departments of agriculture and the industry.

The Southern Regional Soil Research Committee, composed of experiment station and USDA soil scientists and agronomists will meet on November 1 at the Atlanta Biltmore.

### "Big Test" Movie Version by NPFI

National Plant Food Institute had readied for distribution a 13-minute version of "The Big Test", a film story on proper soil sampling. The importance of soil testing in a good farm management program is stressed through an entertaining story of a farmer and his experiences.

### SAACI Forms New Educational Group

An educational committee headed by Shell's J. J. O'Connell has been formed by the Salesmen's Assn. of the American Chemical Industry to carry out a three-pronged educational program.

SAACI intends to set up short courses in such fields as speaking, speed reading, report writing and selling techniques; plans to provide New York metropolitan universities with speakers and information; and will press for establishment of college courses tailored for students aiming at a chemical sales career.

### Cornell Scholarship Established by ECI

Announcement has been made that the Exposition of Chemical Industries has established a 5-year scholarship in chemical engineering at Cornell University.

### Del-Mar-Va Group Meets in Ocean City

Ocean City, Md., will be the meeting place on June 30 for the 35th annual convention of the Del-Mar-Va Peninsula Fertilizer Assn. The affair is scheduled to begin at 10:30 a.m. in the Hotel George Washington, according to F. N. Strudwick, secretary of the group.

Dr. H. L. Dunton, head of the agronomy department, Virginia Agricultural Experimental Station, will be the principal speaker and is scheduled to discuss "What Every Fertilizer Salesman Should Know." Representatives of the National Plant Food Institute will review new developments in fertilizer application and use.

Of special interest will be presentation of an award to the person, as yet unnamed, who has contributed most to the development of agriculture on the Delmarva Peninsula.

Salesmen, dealers, soils specialists, county agents and fertilizer control officials are expected to attend the convention which is open to all farmers. The association is comprised of Delmarva fertilizer manufacturers.

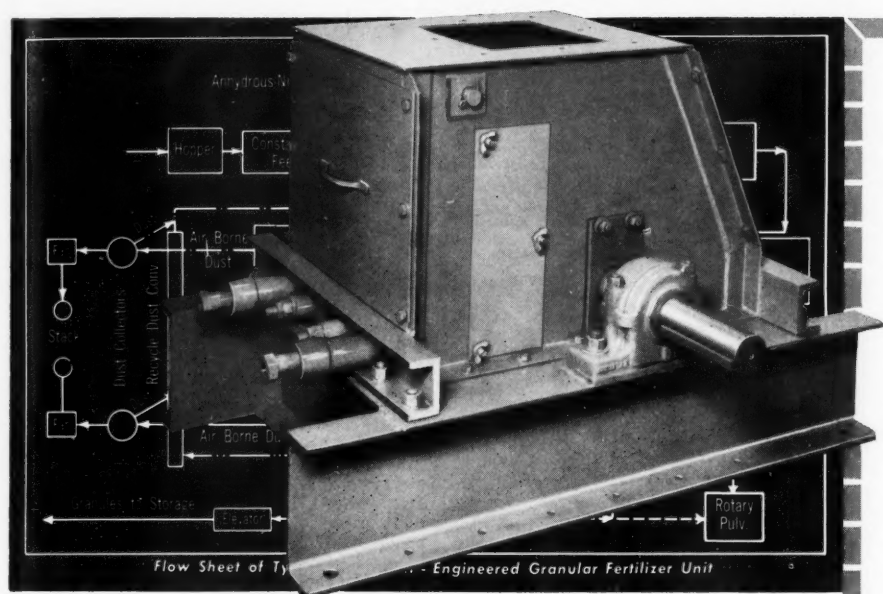
### New MCA Members, Traffic Committee

Brea Chemicals, Inc., and Southern Nitrogen Co., Inc. are among recent new members of Manufacturing Chemists' Assn.

MCA has appointed Charles H. Wager, manager of traffic, Shell Chemical Corp., chairman of the Traffic Committee succeeding H. F. Suiter, Merck & Co., Inc. Walter N. Saaby, Victor Chemical Works, was named vice chairman and new members include B. R. Love, Consolidated Mining & Smelting Co. of Canada Ltd.; M. D. Thompson, Wyandotte Chemicals Corp.; G. A. Falconer, Spencer Chem. Co.; H. F. Haley, Koppers Co., Inc.; and D. M. Morewood, U. S. Steel Corp.



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## Roanoke Meet for Va. Safety Section

Virginia Safety Assn's fertilizer section met on May 25 in the Roanoke Hotel, Roanoke, to hear a number of speakers discuss various aspects of plant food factory safety.

W. C. Richardson, Southern States Cooperative; J. A. Wagner, Swift & Co.; and M. H. Overstreet, Southwest Virginia Cooperative, were co-chairmen of the program committee.

## Nov. Okla. Dealers Conference Planned

Plans are being formulated for the 1956 Oklahoma Fertilizer Dealers Conference to be held November 28 at Oklahoma A&M

College, Stillwater. This year the affair will be held in conjunction with the annual Oklahoma Soils & Crops Conference, scheduled for the following day.

Sponsored by the Oklahoma Plant Food Society for Fertilizer Dealers the conference is held to discuss agronomic information and methods of promoting and merchandising farm chemicals. Perry Onstot, Davison Chemical Co., is program chairman.

## CMRA Award to Albert E. Forster

Albert E. Forster, president and board chairman of Hercules Powder Co., was awarded the Chemical Market Research Association 1956 memorial award at its recent spring meeting.

## Expand Ohio Pest. Institute Program

This year the program for the summer meeting of the Ohio Pesticide Institute will be expanded to include the application of control chemicals to Ohio crops. The affair is scheduled for August 14-15 at the Ohio Agricultural Experiment Station in Wooster.

## Canadian Fertilizer Group Meets July 4-8

The Plant Food Producers of Eastern Canada will meet in the Mont Tremblant Lodge, Mont Tremblant, P.Q. July 4-8 for its convention.

## Two Safety Sheets Released by MCA

Safety sheets on arsenic trioxide (SD-60) and phthalic anhydride (SD-61) have been published by Manufacturers' Assn. Providing data on properties and handling they are available from MCA, 1625 Eye St., NW, Washington 6, D. C. at 30 cents each.

## NCS Film, Booklet On Vacation Safety

National Safety Council has issued a new booklet and film with vacation safety as the theme. The booklet, "Have a Good Time", with colored drawings shows the employees how to enjoy their time away from the job and how to return safely illustrating safe rules of driving, swimming, camping and other activities.

Vacation Safety, the 10-minute sound motion picture, also shows vacation bound employees how to avoid the special hazards of travel, camping and strenuous athletic activities.

For a sample of the booklet and further information on the film write NSC, 425 N. Michigan Ave., Chicago 11, Ill.

## Calendar

**June 5-6.** American Phytopathological Society, North Central Div., summer meeting, Kansas State College, Manhattan.

**June 10-13.** National Plant Food Institute Convention. The Greenbrier, White Sulphur Springs, W. Va.

**June 20-22.** NE Branch, American Society of Agronomy summer meeting, Univ. of Maryland, College Park.

**June 26-28.** Pacif. Branch, ESA, Hotel Claremont, Berkeley, Calif.

**June 28-30.** Pacific Northwest Plant Food Assn. 7th annual regional fert. conf., Yakima, Wash.

**June 28-30.** Assn. of Southern Feed & Fertilizer Control Officials Convention, Hotel Roanoke, Roanoke, Va.

**June 28-30.** Pacific NW Plant Food Assn. Fertilizer Conference, Chinook Hotel, Yakima, Wash.

**June 30.** 35th annual convention, Del-Mar-Va Peninsula Fert. Assn., Hotel George Washington, Ocean City, Md.

**July 4-8.** Plant Food Producers of Eastern Canada, 11th annual convention, Mont Tremblant Lodge, Mont Tremblant, P. Q.

**July 12.** Annual S. C. Fertilizer meeting and tour, Edisto Exp. Sta., Blackville, S. C.

**July 19-20.** Southwestern Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Tex.

**July 25-27.** NW Assn. of Horticulturists. Entomologists & Plant Pathologists Conf., Northwest Wash. Experiment Sta., Mt. Vernon, Wash.

**Aug. 1.** Annual Kentucky Fertilizer Conference, Guignol Theatre, Univ. of Kentucky, Lexington, Ky.

**Aug. 14-15.** Ohio Pesticide Institute, summer meeting, Ohio Agr. Expt. Station, Wooster.

**Aug. 17-25.** Tenth International Congress of Entomology, McGill University & Univ. of Montreal, Montreal, Canada.

**Aug. 22-24.** Beltwide Cotton Mechanization Conf., Atlanta Biltmore, Atlanta, Ga. (Sponsored by National Cotton Council.)

**Aug. 30.** S. C. Plant Food Educational Society Fall Convention, Clemson House, Clemson, S. C.

**Oct. 15.** Fifth annual chemical sales clinic sponsored by Salesmen's Assn. of the American Chemical Industry, Hotel Commodore, New York City.

**Oct. 16-17.** National Nitrogen Solutions Assn. annual meeting and trade show, City Auditorium, Sioux City, Iowa.

**Oct. 22-26.** 44th National Safety Congress and Exposition, sessions in Conrad Hilton, Congress, Morrison and La Salle Hotels, Chicago.

## Report on the new MICHIGAN 12B



*Clark's exclusive power-shift transmission*

### **eliminates the most notorious cause of excessive maintenance**

No engine clutch, no clutch pedal, no gear clash! Clark's power-shift transmission is standard equipment on the new 15 cu. ft. Michigan Tractor Shovel—completely eliminates this notorious cause of excessive maintenance and down-time.

**Instant power-shifting.** In place of the conventional gear-shift levers and clutch pedal, the Michigan has a single power-shift lever on the steering column. You can make any shift instantly, even when moving: simply push the lever to High, Low or Reverse position. As any operator will tell you, *it sure beats riding a heavy clutch all day.*

**Faster cycles.** There's no hesitation, no gear clash, no loss of momentum when you shift—saving seconds or minutes on every cycle.

Power-shifting also makes the Model 12B more maneuverable in boxcars and narrow aisles, since you don't have to fumble with conventional levers and clutch pedal.

**Heavier, more power.** The new Michigan is 20% heavier and more powerful than most machines in its class. With this margin of weight and power, plus low-level independent bucket action, the 12B *digs* where other machines spin their wheels.

**See it in action.** The complete power train of the new 12B—power-

shift transmission, 3-to-1 torque converter and planetary wheel axle—is designed and manufactured by Clark, specifically for the roughest kind of industrial bulk handling. Complete dust protection features are standard; gas or diesel optional. See the new 12B in action, on your own job—write us to arrange a demonstration.

**The new Michigan 12B is available on Clark's no-down-payment Lease Plan; clip this coupon to your letterhead and mail it for details.**

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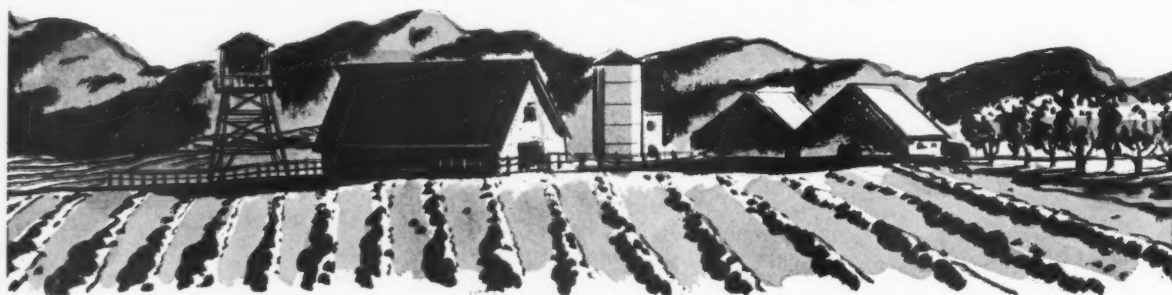
**"HORSE & LION" Calcium Nitrate:** 15½% pure nitrogen, combined with about 20% available lime. Granulated.

**"HORSE & LION" Ammonium Nitrate Limestone:** 20½% pure nitrogen (10¼% nitric and 10¼% ammoniac nitrogen) and approximately 32 to 33% calcium carbonate. Granulated.

**"HORSE & LION" Ammonium Sulphate Nitrate:** 26% pure nitrogen (11% nitric and 15% ammoniac nitrogen). Granulated.

**"HORSE & LION UREA 44":** 44% pure nitrogen. Coated pellets for dry use.

**"HORSE & LION UREA 46":** 46% pure nitrogen. Pellets without coating for liquid application or dry use where fast dissolving desired.



For complete information and prices, contact your nearest "HORSE & LION" fertilizer headquarters.

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# Pesticide Report

Ample Supplies;  
'55 Termed the  
Best Since 1951

**T**HE forecast of ample supplies of pesticides in 1956 and the opinions showing that 1955 was the best year since 1951 were confirmed in USDA's latest Pesticide Situation report by Harold H. Shepard of the Commodity Stabilization Service.

Domestic requirements for the current season are estimated at between 35 million and 50 million pounds, somewhat under 1954-55 season disappearance. This disappearance at the producers' level, as shown in table 2, is calculated by applying to the production figure any inventory change taking place during the period and subtracting exports if these are known.

## Exports and Imports

Exports in 1955, according to Bureau of the Census figures, were valued at \$73,363,000, nearly \$14 million greater than the previous year. Mexico received 25 per cent and Canada 11.6 per cent of 1955 exports. Formulations containing 25 per cent or more DDT comprised 22 per cent of the value of all 1955 US exports.

Large shipments of insecticides will be continued at least for the next few years, states the report, due to requirements of malaria eradication programs in various foreign areas.

Pesticide formulations, as purchased by the consumer, notes Shepard, amount to only about one thirtieth of the total tonnage of farm chemicals.

This estimated breakdown shows 1954 farm consumption:

	TONS
Fertilizers.....	23,000,000
Liming materials.....	19,000,000
Pesticides, formulated.....	1,500,000
Miscellaneous.....	1,000,000
<b>TOTAL.....</b>	<b>44,500,000</b>

Aerial treatments with pesticides and defoliants in 1954, according to the CAA, were made on fewer acres (31,063,000) than in 1953 when the treated acreage was reported as 33,922,000. Total material applied dry in 1954 amounted to 235,056,000 pounds and liquids totaled 90,706,000 gallons of diluted spray materials. Hours flown in these activities during 1954 were 541,006 compared to 591,491 in 1953. No figures are yet available covering 1955.

## Fertilizer-Pesticide Mixtures

Fertilizer-insecticide mixtures are now recommended in about 26 states and total use has been estimated at 90,000 tons for 1953, 150,000 for 1954 and 200,000 for 1955. A considerable increase is anticipated this year.

The value of insecticides and fungicides distributed by 23 major regional farm supply coopera-

## U.S. Pesticide Production 1952 to 1955

Chemical	1952 1,000 lb.	1953 1,000 lb.	1954 1,000 lb.	1955 <sup>1</sup> 1,000 lb.
BHC (gross) <sup>2</sup> .....	85,090	57,363	76,934	<b>54,995</b>
(gamma equivalent).....	12,800	8,800	11,500	<b>10,161</b>
Calcium arsenate.....	7,634	7,260	2,758	<b>4,232</b>
Copper naphtheante.....	13,680	3,268	3,557	<sup>4</sup>
Copper sulfate.....	189,072	145,888	130,616	<b>156,176</b>
2,4-D acid.....	30,718	25,928	30,184	<b>34,070</b>
2,4-D acid esters.....	21,108	18,826	16,994	<b>28,235</b>
2,4-D acid salts <sup>3</sup> .....	3,933	4,836	5,642	
DDT.....	99,929	84,366	97,198	<b>125,134</b>
Lead arsenate.....	14,286	14,196	15,620	<b>14,776</b>
Methyl bromide.....	4,620	6,167	<sup>4</sup>	<sup>4</sup>
Parathion.....	2,365	2,999	3,889	<sup>4</sup>
Phenothiazine.....	5,914	3,700	3,437	<sup>4</sup>
Sodium chlorate.....	80,868	86,442	75,644	<b>93,226</b>
2,4,5-T acid.....	3,490	5,281	2,697	<b>2,887</b>
2,4,5-T derivatives.....	3,138	5,386	3,883	<sup>4</sup>
Tetraethyl pyrophosphate (40% basis).....	922	229	361	<b>507</b>
Ziram.....	934	1,152	1,117	<sup>4</sup>
Aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene (combined pro- duction).....	49,000	29,000	45,169	<b>68,000</b>

<sup>1</sup> Preliminary. <sup>2</sup> Not including lindane. <sup>3</sup> Sodium and amine salts. <sup>4</sup> Either not yet available or cannot be disclosed.

Sources: U. S. Tariff Commission; U. S. Bureau of the Census; U. S. Bureau of Mines.

tives reached \$11,950,000 in 1954, a 17.4 per cent increase over the previous year. During 1954, fertilizer sales by these organizations increased 5.7 per cent.

Here is a run down on Shepard's notes on specific pesticide materials:

### Insecticides

**DDT.** Production during the 1954-55 crop year was 110,550,000 pounds compared to 90,712,000 pounds for the previous period. For October, 1955 through February, 1956, output was 53,909,000 pounds.

Actual US consumption appears to have been between 55 and 60 million pounds in 1954-55, the highest since 1951. Exports also showed a big gain, totaling 50,968,000 pounds for the period compared to 42,743,000 pounds for the previous year.

**BHC.** Production (gamma basis) in 1955 was nearly 12 per cent under 1954 although consumption appeared well above 1953-54, a situation reflecting the considerable reduction in carryover stocks. Inventories are reported heaviest

## Disappearance and Requirements by Crop Years

	Domestic disappearance at producers' level			Requirements for domestic consumption in 1955-56	
	1952-53 1,000 lb.	1953-54 1,000 lb.	1954-55 1,000 lb.	Minimum 1,000 lb.	Maximum 1,000 lb.
BHC <sup>2</sup> .....	7,300 <sup>7</sup>	8,500 <sup>7</sup>	<b>7,800</b>	<b>7,000</b>	<b>9,000</b>
Calcium arsenate.....	7,000	3,190	<b>3,823</b>	<b>8,000</b>	<b>12,000</b>
Copper Sulfate <sup>3</sup> .....	79,605	80,257	<b>77,988</b>	<b>40,000</b>	<b>55,000</b>
2,4-D (acid) <sup>4</sup> .....	26,634 <sup>7</sup>	27,251 <sup>7</sup>	<b>29,000</b>	<b>25,000</b>	<b>28,000</b>
DDT.....	62,500 <sup>7</sup>	45,117	<b>61,800</b>	<b>50,000</b>	<b>60,000</b>
Lead arsenate.....	16,000	16,000	<b>12,895</b>	<b>14,000</b>	<b>18,000</b>
Parathion <sup>4</sup> .....	3,000	3,975	n.a.	<b>3,500</b>	<b>5,000</b>
Pyrethrum <sup>5</sup> .....	8,113	7,610	<b>7,671</b>	<b>7,500</b>	<b>8,500</b>
Rotenone <sup>6</sup> .....	4,468	6,428	<b>5,954</b>	<b>6,000</b>	<b>7,000</b>
2,4,5-T (acid) <sup>4</sup> .....	4,645 <sup>7</sup>	2,906	<b>2,500</b>	<b>2,500</b>	<b>3,500</b>
Aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene (combined) . .	34,050	35,420	<b>57,000</b>	<b>35,000</b>	<b>50,000</b>

<sup>1</sup> Based on available information; crop year is from October 1 to the following September 30. <sup>2</sup> Gamma isomer basis; includes lindane  
<sup>3</sup> Disappearance for all domestic uses including industrial; requirements for agriculture only but include plant nutrient as well as fungicide use. <sup>4</sup> Export data not being reported separately, figures represent total disappearance at producers' level. <sup>5</sup> Revised imports; includes advanced in value (powdered), also equivalent of pyrethrum extract imported from Africa beginning in 1953-54. <sup>6</sup> Imports; includes cube and derris, both whole root and powdered. <sup>7</sup> Revised figure.

in low (10-15 per cent) and 36-46 per cent gamma materials.

### Percentage Breakdown of Manufacturers' Inventories of BHC as of September 30, 1955

GRADE	GROSS BASIS	GAMMA BASIS
12-15 per cent gamma . . . . .	76.0	45.6
36-46 per cent gamma . . . . .	19.5	39.7
99 per cent gamma (Lindane) . . . . .	2.4	12.1
Other grades . . . . .	2.1	2.6

Production from October, 1955 through February, 1956 totaled 24,058,000 pounds with a gamma content of 4,372,000 pounds.

A 50 per cent gain in overall production of the remaining **chlorinated hydrocarbons** was noted from the 1943-54 crop year with domestic disappearance of some 57 million pounds, compared to about 35 million for the previous year. Included in these figures were output of aldrin, chlordane, diel-drin, endrin, heptachlor and toxaphene.

Reviewing the **organic phosphates** the report noted the increased recognition of malathion's value and stated that there is a current upsurge of interest in methyl parathion. Considerable amounts of parathion are being exported, especially to Mexico and increased use is being made of chloro-thion and diazinon.

Production and inventories of **lead arsenate** remained about the same in 1954-55 as in the previous year but domestic consumption of calcium arsenate apparently rose to about 7,500,000 pounds. Less than half that amount was used in 1953-54. The difference is attributed to a shift by some growers to calcium arsenate because of the possible resistance of boll weevil to chlorinated hydrocarbons.

**Pyrethrum.** Usage in this country amounts to about 100,000 pounds pyrethrum, two-thirds of the world consumption. The figure is expected to rise largely because of the impact of the Miller bill.

Imports during 1954-55 comprised 5,120,000 pounds of flowers (including a small quantity of powder) and 153,000 pounds of extract.

The trend, reported the USDA, in Africa is toward greatly increased extraction facilities because of lower shipping costs and greater stability.

East African deliveries of pyrethrum to the world market (unextracted flowers basis) were seven per cent lower in 1954-55 than the previous year although much higher than any other year since 1951. Over 99 per cent of all imports were South American cube and of these, 59.7 per cent were powdered root compared with 40.7 per cent powdered in 1953-54.

## Manufacturers Stocks September 30, 1955

Materials	Stocks on hand 9/30/55 (1,000 lb.)	% of 1955 stocks reported as formulations	% that 1955 stocks are of	
			9/30/54	9/30/53
BHC, including lindane (gamma basis)	3,900	52.9	60	68
Calcium arsenate	1,625	17.7	24	15
DDT	29,250	50.0	101	94
2,4-D (acid basis)	10,000	54.7	122	120
Lead arsenate	6,900	19.1	109	106
Sulfur, ground	36,000	47.3	112	88
2,4,5-T (acid basis)	est. 2,000	58.3	89	78
Aldrin, chlordane, diel-drin, heptachlor, toxaphene <sup>1</sup>	16,400	50.2	96	61
Captan, chloro-IPC, DDD, dithiocarbamates, malathion, methoxychlor, parathion, sodium TCA <sup>1</sup>	20,800	47.6	178	169
All materials <sup>2</sup>	153,700	47.6	98	83

Figures for materials produced principally by less than three firms are not given individually. <sup>2</sup> Included are a number of chemicals not named above.

Source: Survey by U. S. Dept. of Agriculture in cooperation with the National Agricultural Chemicals Association.

**Miticides.** Aramite, dementon, ovex, parathion and sulfur are estimated to account for about 80 per cent of the total acaricide market. Present usage of sulfur on cotton for mite control is believed to be about 85,000,000 pounds.

### Fungicides, Herbicides, Others

Although **copper sulfate** production rose appreciably in 1955 it was still well below average and production in 1953 to 1954 was lower than any year since 1940. However, exports during the year were higher than the 10 year average 1946-55. Shipments to agriculture are reported to have been fairly constant for three years, rising only three per cent in 1955, when 36,288,000 pounds were shipped for agricultural use.

Although use of distillate coal tar creosote as a **wood preservative** decreased 16 per cent in 1954, it was still the most widely used material, and creosote or creosote solutions were used to treat about 85 per cent of all materials during the year.

Pentachlorophenol gained considerably as a wood

## DDT Production and Exports

Calendar Year	Production	Exports		
		Quantity	Value	Proportion of production
	(1,000 lb.)	(1,000 lb.)	(\$1,000)	(Per cent)
1951.....	106,139	—	14,752	—
1952.....	99,929	32,288	15,731	32.3
1953.....	84,366	31,410	10,518	37.2
1954.....	97,198	42,329	13,438	43.6
1955 <sup>1</sup> .....	125,134	53,252	16,184	42.6

<sup>1</sup>Preliminary.

Source: U. S. Tariff Commission; U. S. Bureau of the Census.

preservative in 1954 and now ranks as second in importance. Third is chromated zinc chloride followed by Wolman salts.

Minnesota was selected as a state with a typical range of weed growth and weed control activities that are rather indicative of herbicide consumption in other areas. Last year the quantity of "soil sterilizing compounds," used in the state, chiefly chlorate-boron mixtures, was off 7.2 per cent from 1954 but still was 5.6 per cent above 1953. Percentage of grain acreages sprayed during the year rose to 28.6 per cent (22.6 per cent in 1954) and the mileage of roadsides, ditches and rights-of-way, telephone lines and power lines sprayed increased 6.5 per cent from 1954—from 54,653 to 58,199.

US herbicide exports in 1955 amounted to 15,799,000 pounds worth \$6,032,000 compared to 14,829,000 pounds and \$5,315,600 in 1954.

**2, 4-D.** Consumption rose appreciably during the 1955 season and production of acid for the calendar year was up 13 per cent over 1954. Although a breakdown of production of 2, 4-D salts and esters for the year was not available, it is known that the proportion of esters dropped from 80 to 75 per cent of the total weight of these classes.

Consumption figures were not available on use of **sodium chlorate** in weed control or defoliation. Estimates are somewhat confusing but a Department of Commerce report shows that 29,000,000 pounds were used in 1954 for herbicidal purposes and 4,750,000 pounds for defoliation. This appears lower than in 1952 or 1953.

Two to three million pounds of **methyl bromide** were applied in 1955 as a soil fumigant, chiefly to tobacco, celery and other seed beds. North Carolina is said to consume over half of all soil fumigants used in the United States and about one third of the tobacco crop (231,000 acres) was fumigated last year for nematode control.

A steady growth of **grain fumigant** usage in recent years was noted along with a gain in grain protectant application. In grain protectants, a shift from dusts to liquid sprays was seen.

The pesticide industry consumes about 30 per cent of domestic pyrophyllite output, 18 per cent of the fuller's earth, 11 per cent of the talc and under two per cent of the kaolin (china clay). The report notes extensive use of synthetic calcium silicate in formulations because of its very small particle size and other properties. ▲

## Estimated Cotton Acreage Treated, 1955

Area	Acres treated					Per cent of total cotton acreage
	Defoliated		Desic- cated	Bottom defoliated	Total treated	
	Dusted	Sprayed				
Southeast <sup>1</sup> .....	259,500	7,100	425	500	267,525	8.8
Mid-South <sup>2</sup> .....	818,000	326,000	16,900	5,000	1,165,900	24.8
Texas-Oklahoma..	220,000	435,000	415,000	500	1,070,500	14.4
Far-West.....	1,200	440,848	12,000	11,000	465,048	36.9
Total.....	1,298,700	1,208,948	444,325	17,000	2,968,973	18.0
Per cent of Total treated.....	43.7	40.7	15.0	0.6	18.0	—

<sup>1</sup>Includes North Carolina, South Carolina, Georgia, Alabama.

<sup>2</sup>Includes Mississippi, Louisiana, Tennessee, Arkansas, Missouri.

Source: Report of Defoliation Conference, W. H. Tharp, chairman; March 13, 1956.





Assistant Fire Chief C. W. Stephenson (right) explains to mask wearer Robert Washburn, senior research chemist, and Winston Walker, laboratory technician, that indicator on self-sustaining gas mask shows how much oxygen remains in the cylinder on the back of subject.

**R**ESearch workers at the American Potash & Chemical Co., Whittier, Calif. laboratories, are learning how to fight fires and handle auxiliary equipment until professional fire-fighting crews arrive on the scene of a conflagration.

Arranged by the lab's safety committee in cooperation with the Whittier Fire Department, the fire-fighting forum is a part of AP&C's stepped-up safety program.

C. W. Stephenson, Whittier assistant fire chief, conducted lectures and demonstrations, including question and answer sessions. Following this indoctrination, each of the laboratory technical per-

## Fire-fighting—

### Lab Workers Learn How in New Course

sonnel put out a controlled gasoline-and-oil fire with a dry chemical fire extinguisher.

Employees were also instructed on the proper methods of donning and adjusting two types of gas masks used for varying emergencies.

Additional sessions were planned in fire drills and other aspects of fire prevention and control. The lab's safety program already included frequent inspections by division heads and unannounced checks by its personnel.

That AP&C's bolstered safety program is paying big dividends was confirmed when the company was awarded the Lammot du Pont Safety Plaque, the chemical industry's highest safety award, presented annually to the firm showing the greatest improvement in plant safety over a five year period. ▲



Ross Wagner, research project chemist, approaches gasoline-and-oil blaze with dry chemical fire extinguisher, aiming the spray at the base or source of flame.



Dr. David Stern, head of the lab Electrochemistry Section, moves spray steadily across pan as fire comes under control, thus putting out remaining part of blaze.



**Sen. J. W. Fulbright**



**Glenn R. Fouché**

**O**VER 1,000 persons are expected to attend the annual convention of the National Plant Food Institute at The Greenbrier, White Sulphur Springs, W. Va., June 10-13. This is the first general convention of the group since consolidation of the American Plant Food Council and National Fertilizer Association on July 1 last year.

Principal speaker at the affair will be Senator J. W. Fulbright (D-Ark.), Chairman of the Senate Committee on Banking and Currency who is scheduled to address the group on the tentative subject, "Our Nation's Role in World Tension."

Meetings of the executive committee and the

# Fulbright, Fouché NPFI Convention

**Bohlen & Beal, Time-Lapse  
Film, Latest Institute  
Movie also Featured**

board of directors of the Institute will be held on June 10 with the first general session convening on the following day. J. A. Howell, NPFI president, will preside over programs on both the 11th and 12th.

Speakers on the 11th will include Russell Coleman, executive vice president of the Institute; Drs. J. M. Bohlen and H. M. Beal of Iowa State College and Glenn R. Fouché, vice-president, The Stay-form Co., Chicago, Ill.

Coleman will review, in a visual presentation, "One Year of Service" and Bohlen and Beal, associate professors of rural sociology at ISC, are scheduled to demonstrate their findings on "Who Influences the Farmer."

Fouché, termed a constant booster for higher ethical standards in the direct selling field, will speak on "Dramatize Your Selling." He has been active for 20 years with the National Association of Direct Selling Companies, served two terms as its president and is still a director of that group. In 1950 he was selected as one of 10 men sent to England under auspices of Paul Hoffman and ECA to tell the British about American selling methods.

During the afternoon of the 11th a business meeting of the Research and Education committee will be held.

Sessions on June 12 will include, in addition to the Fulbright address, the premiere showing of the new NPFI movie, "What's In The Bag?" Louis H. Wilson, secretary and director of information of the Institute, will present NPFI's annual Soil Builders Award for Editors. Last year, this honor for "superior journalistic contributions toward the building of the soils of our nation" went to Kirk Fox of SUCCESSFUL FARMING and Tom Leadley of NEBRASKA FARMER.

# the Highlight on Program

Also on the Tuesday program is John Ott with a time-lapse film presentation on "Seeing Plants Feed." A national authority on this field of photography, Ott has supplied films for or taken part in numerous well known TV programs including "Home," "Today," "Zoo Parade" and "Out on the Farm" in addition to conducting his own TV garden show. His movies are often used by Walt Disney in films such as the award winning "Nature's Half Acre" and Ott and his equipment will be featured on the September 20th Disneyland program.

Ott has also done considerable research work through time-lapse methods in a variety of fields such as studies on cancer growth, effects of new drugs, growth reactions of pollen in connection with hay fever and other allergies and the effects of herbicides on plants.

The annual business meeting will also be held on June 12, preceded by a memorial resolution presented by Hugo Riemer, chairman of the memorial committee. A break-

fast meeting of the board of directors is scheduled for June 13.

Social activities will include a hospitality hour, courtesy of the nitrogen producers, on the evening of June 11 and the annual banquet on Tuesday, June 12 following a hospitality hour sponsored by the potash producers.

For the sportsman and sportswoman, golf, tennis and horseshoe tournaments are on the schedule. Tennis activities will include doubles only (men's, ladies' and mixed) while three golf tournaments will be held—members, veterans and guests.

Especially for the ladies will be another film presentation by John Ott on June 11, "Watching Flowers Grow." Also on the program is a garden party on the afternoon of June 10, a tour of the Greenbrier Hotel and a bridge and canasta party on the 11th and a putting contest on June 12.

Committee chairmen for the affair include Hugo Riemer, memorial; Mr. and Mrs. F. J. Woods, hospitality; A. A. Schultz, horseshoe pitching; Joseph Mullen, tennis; Mrs. J. F. Corkill, prizes; R. S. Rydell, men's golf; Mrs. J. D. Stewart, Jr., ladies' golf; Mrs. J. A. Howell, chairman and Mrs. George E. Pettit, vice-chairman, ladies' committee; and Mrs. John R. Taylor, Jr., bridge and canasta. ▲

## Who Influences the Farmer?



Dr. George M. Beal (left), associate professor of economics and sociology, and Dr. Joe Bohlen, associate professor of rural sociology, at Iowa State College in their "Who Influences the Farmer" visual presentation. Beal has specialized in social action, the diffusion process, community organization and group dynamics while Bohlen has been particularly interested in rural organizations and group processes. Both are Iowa State grads.



Meeting of the Committee on Bankers Information, held at the Palace Hotel, San Francisco, Jan. 30.

## 300 Attend California Fertilizer Conference

**S**OME 300 persons attended the 4th annual California Fertilizer Conference, April 15-17 at the University of California, Riverside, a meeting sponsored by the Soil Improvement Committee, California Fertilizer Association. Dr. G. B. Wood, head, Department of Agricultural Economics, Oregon State College, was the banquet speaker and discussed various phases of the farm economy situation.

Reviewing phosphate response tests conducted on vegetables grown on an Imperial Valley soil low in available phosphorus, Dr. Oscar E. Lorenz, professor of vegetable crops at Riverside, reported that the most striking crop effect was that of hastening maturity. This was noted in every crop, he said, but especially in leafy vegetables such as cabbage and lettuce. The least increase in time of harvest was obtained with cantaloupes.

The relationship between soluble phosphorus in the leaf and subsequent yield varied widely from fair to excellent with different crops, continued Lorenz. Lettuce and cabbage gave progressive and consistent increases in phosphorus content of the leaf as applications were increased to 180 pounds of  $P_2O_5$  per acre. With these plants there was also good agreement of the phosphorus level and subsequent yields.

The benefits of fertilization in dry range production of beef cattle were described by Dr. Logan Carter, head, Department of Soils, Calif. State Polytechnic College. Studies conducted at that school involving application of 300 lbs. of 16-20-0

per acre every three years showed that green feed may be obtained from four to six weeks earlier than usual, higher stocking rates are possible with up to twice as many animals per acre, there is more uniform harvesting of forage, animals are in better condition for feed-lot finishing and dry forage is of better quality for summer grazing of animals needing a maintenance ration.

Twenty year lysimeter tests at Riverside produced some interesting facts that were reported by Dr. Roy Branson, assistant chemist, Department of Soils and Plant Nutrition. The studies revealed an average annual net gain in nitrogen from fixation of 125 pounds per acre, whether the cover was vetch or sweet clover.

Although, said Branson, nitrogen fertilizer decreased the gains somewhat, even with a 200 pounds per acre application each year, the net gain from fixation was close to 100 pounds per acre. Yields were increased by nitrogen fertilization even though the legumes fixed large amounts of the element.

During the 20 years, Branson continued, the net loss of phosphorus has been 325 pounds per acre, due almost entirely to crop removal. This represented a 22 per cent loss of soil phosphorus in a relatively short period of time.

Loss of potash represented only one and one half per cent of total soil potash but, said Branson, it is clear that the time is coming when potash fertilization of Western soils will be necessary to sustain fertility.

Simultaneous panel discussions were held during



the conference, one on salinity problems and the other on phosphate fertilization. During the latter session Dr. Frank T. Bingham of the Riverside Department of Soils and Plant Nutrition forecast a continued bright outlook for phosphorus usage. Some 50 per cent of the 10 million acres of California valley lands are deficient for most crops, he said, even more of the surrounding terrace soils are lacking and most of the better than 50 million acres of upland soils are low in available phosphorus.

Little difference was reported by Dr. Lorenz in the value of various phosphorus sources on vegetable production. He did indicate, however, that dicalcium phosphates and other water-soluble forms have not given good benefits on alkaline calcareous soils even when placed close to young plants.

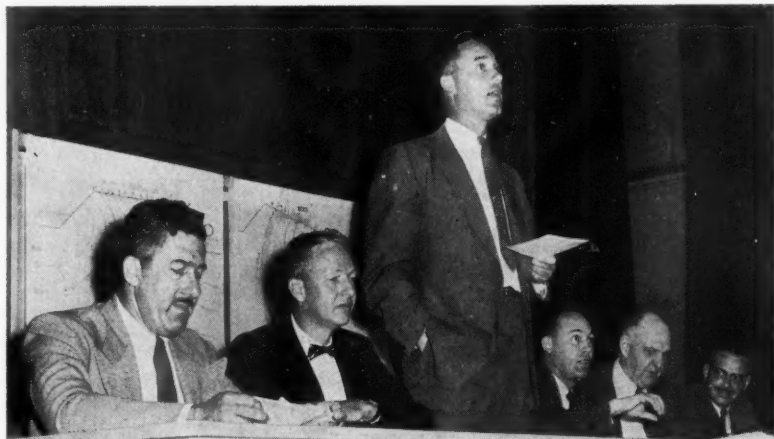
"Growers need to be told and convinced," he added, "that phosphorus doesn't leach or move in the soil and that the entire phosphorus application can and should be made at planting." He pointed out the serious disadvantage when application is delayed for even a month adding that "the early

plant uptake of phosphorus and rapid early growth is probably the main reason why phosphorus is so important in hastening the maturity of many of our vegetable crops."

During the question and answer period following the panel statements, Lorenz reported that some growth increase has been produced by foliar sprays of urea and several phosphorus materials on annual crops but that the method has not been nearly so satisfactory as soil application.

Other speakers at the conference included Allen B. Lemmon, chief, California State Bureau of Chemistry, who reviewed current efforts to change the form of NPK guarantees to elemental form. Advantages cited by Lemmon include the uniformity of labeling that would result, elimination of confusion when discussing deficiencies and guarantees and a more accurate indication of the true ratio of a fertilizer mixture.

A national committee was scheduled to meet in Washington this spring, said Lemmon, to discuss formation of a program leading to the use of elemental guarantees. ▲



**Members of the Salinity Problems panel included Dr. Milton Fireman; Dr. Robert Harding; Dr. D. G. Aldrich, Jr., Moderator; Dr. O. R. Lunt; W. R. Schoonover and Dr. Leon Bernstein.**

**Panel on Phosphate Fertilization included Dr. Emil Truog; Dr. O. A. Lorenz, Howard H. Hawkins, moderator; Dr. Tom W. Embleton and Dr. Frank T. Bingham.**



# V-C Independents Ask Statement of Intent

**I**N LATE May, stockholders of Virginia-Carolina Chemical Corporation received a letter from an "Independent Stockholders Committee" asking support of its demands through a Statement of Intent. V-C President Joseph A. Howell immediately termed the procedure "wasteful" and invited board nominees of the insurgent group to meet with the V-C board and management.

To date, the committee has still not put forth a definite program and states that such action cannot be taken until a reconstituted board considers all phases of company operations. Headed by co-chairmen Stanton W. Frederick, Seattle, Wash., executive vice-president, Badgley, Frederick, Rigers & Morford, Inc., and Wm. C. Franklin, Baltimore, Md., president, Royal Crown Bottling Co. of Baltimore and of Washington, the group will demand that the V-C board be enlarged to 13 members and that any four of the present 11 directors resign.

Rupert T. Zickle would remain as a director with vacancies filled by these individuals: Franklin; Frederick; John S. Battle, partner, Perkins, Battle & Minor; J. Chadbourne Bolles, Charlotte, N. C., president & treasurer, Chadbourn-Gotham, Inc. and president, Charlotte Packaging Corp.; M. Stuart Roesler, vice president, Empire Trust Co., New York City, and Alexander J. V. Thelen, vice president and trust officer, Citizens Bank & Trust Co., Charlottesville, Va.

Although a definite program has not been released by the group, it has suggested that areas requiring "serious consideration" include the reduction of purchased raw material costs, expansion of fertilizer sales in fields where demand is growing rapidly and a program of chemical diversification. In addition, says the committee, research should be expanded—"present management spends less than one per cent of sales on the company's research program."

Calling for the proposed meeting within "seven days" of his May 25 letter, Howell wants to discuss specific ideas for V-C improvement, fitness of the insurgent board nominees and their knowledge of the

company and industry to determine whether there are policy differences that justify the demands for a change in the board.

"We believe," said Howell, "the group should reveal concrete plans for improving the company instead of asking stockholders to buy a pig in a poke." Stockholders should be informed, he continued, of any policy issues and, if the invitation is refused, "we will have to conclude that they are unwilling to reveal to stockholders an unpreparedness to run the company. . . ."

Suggesting that the "straw ballot" could give a misleading impression, the V-C head stated that consideration will be given only to statements signed by the record owner or a signer certifying he is following "written instructions from or oral instructions confirmed in writing to" the beneficial owner.

Total expenditure for the statements of intent are estimated by the insurgents at \$25,000 which will be paid initially by several participants. However, reimbursement will be sought from the company.

Should V-C management reject proposals of the independent stockholders, they add, a full scale proxy solicitation will follow and again reimbursement from the company will be demanded.

For the first time, the insurgents have presented a list of the 17 persons (including Zickle and the six board nominees) supporting their demands. Included as participants are Earle D. Knudsen, proprietor, Industrial Specialties Co. and district manager, Chase Brass & Copper Co.; Arthur A. Cowen, Sr. and Jr., partners, Cowen & Co.; Edwin A. Cowen, limited partner, Cowen & Co.; James C. Wheat, partner, J. C. Wheat & Co.; Leonard F. Fuld, president, Helene Fuld Health Foundation; Peter W. Lange, investment broker, J & W Seligman & Co.; Theodore D. Carlson, partner, Cyrus J. Lawrence & Sons; Robt. F. Howard, partner, Cyril deCordova & Bro.; and Edwin M. Badgley, security salesman, Badgley, Frederick, Rogers & Morford, Inc.

Stock in V-C (both preferred and common) held by these 17 participants is just under 10 per cent of the total outstanding. ▲

# Latest Tolerance Actions

By John Harms

**F**OLLOWING are most recent Food & Drug Administration extensions of dates on which the Miller law becomes effective on pesticides.

**New effective date, July 22, extended from March 1:**

**As grain fumigants**—carbon bisulfide, carbon tetrachloride, chloropicrin, ethylene dibromide and ethylene dichloride.

**On citrus**—malathion, and diphenyl (extended from April 22).

**On livestock as fly spray**—allethrin, piperonyl butoxide and pyrethrins.

**On stored agricultural commodities**—piperonyl butoxide on almonds, beans, cocoa beans, copra, grain sorghum, peanuts, peas, walnuts; pyrethrins on almonds, beans, cocoa beans, copra, grain sorghum, peanuts, peas, walnuts.

**In or on meat and sweet potatoes**—DDT.

**In fly sprays**—MGK 264.

To clarify status of foods bearing residues for which the effective date has been extended, the FDA makes this statement:

"Use prior to July 22, 1956, of a pesticide chemical for which extension is granted may yield a raw agricultural commodity that bears residues of the chemical.

"In such cases, the raw agricultural commodity will not be considered as adulterated within the meaning of the Federal Food, Drug and Cosmetics Act even though it is marketed after July 22, 1956, provided the commodity bearing such residues would have been legal in interstate commerce in 1956, prior to July 22."

JUNE, 1956

**New effective date, June 15:**

**In copra**—ethylene oxide.

**In or on walnuts**—octamethyl pyrophosphoramide.

**As grain fumigant**—trichloroethane.

Secretary of Agriculture has certified usefulness and FDA has approved a petition to insert "Potatoes" in the list of raw agricultural commodities covered by 1 ppm residues of 3-(3, 4-dichlorophenyl) 1, 1-dimethyleurea. Also approved insertion of "grapes" in the list covered by 1 ppm residues of 3-(*p*-chlorophenyl)-1, 1-dimethyleurea.

## Tolerances Established

Tolerance for residues of *dieldrin* in or on raw agricultural commodities have been established as follows:

(a) 0.75 ppm in or on barley straw, oat straw, rice straw, rye straw, wheat straw.

(b) 0.25 ppm in or on apples, beets (garden), garden beet tops, broccoli, brussels sprouts, cabbage, cauliflower, celery, cherries, collards, cucumbers, endive (escarole), grapefruit, kale, kohlrabi, lemons, lettuce, limes, mustard greens, oranges, pears, pineapple, quinces, rutabagas, salsify tops, spinach, summer squash, Swiss chard, tangerines, turnips, turnip tops.

(c) 0.1 ppm in or on asparagus, barley grain, carrots, cranberries, eggplant, grapes, horseradish, mangoes, oat grain, parsnips, peppers, pimentos, potatoes, plums and prunes, radishes, radish tops, rice grain, rye grain, salsify root, strawberries, sweet potatoes, tomatoes, wheat grain.

(d) Zero in or on alfalfa, beans, black-eyed peas, cantaloupe, clover, corn grain, corn forage, cowpeas, cowpea hay, grain sorghum, grain sorghum forage, lespedeza, muskmelons, peas, pea hay, pop-

corn, pumpkins, soybeans, soybean hay, watermelons, winter squash.

Tolerances for residues of *aldrin* in or on agricultural commodities have been established as follows:

(a) 0.75 parts per million in or on barley straw, oat straw, rice straw, rye straw, wheat straw.

(b) 0.25 ppm in or on apples, apricots, beets (garden), garden beet tops, broccoli, brussels sprouts, cabbage, cauliflower, collards, cucumbers, endive (escarole), garlic, grapefruit, kale, kohlrabi, leeks, lemons, lettuce, limes, mustard greens, onions, oranges, peanuts, pears, quinces, rutabagas, salsify tops, shallots, spinach, summer squash, Swiss chard, tangerines, turnips, turnip tops.

(c) 0.1 ppm in or on asparagus, barley grain, beets (sugar), sugar beet tops, cantaloup, carrots, celery, cherries, cranberries, eggplant, grapes, horseradish, mangoes, muskmelons, nectarines, oat grain, parsnips, peaches, peppers, pimentos, pineapple, plums and prunes, pumpkins, radishes, rice grain, rye grain, salsify root, strawberries, tomatoes, watermelon, wheat grain, winter squash.

(d) Zero in or on alfalfa, beans, blackeyed peas, clover, corn grain, corn forage, cowpeas, cowpea hay, grain sorghum, grain sorghum forage, lespe-deza, peas, pea hay, peanut hay, popcorn, soybeans, soybean hay.

Tolerance for residues of *p-chlorophenyl p-chlorobenzenesulfonate* have been established as follows:

(a) 5 ppm in or on grapefruit, lemons, oranges, tangerines.

(b) 3 ppm in or on apples, peaches, pears, plums (prunes).

Tolerance for residues of *Thiram* in or on apples has been set at 3 ppm.

Tolerance for residues of *lindane* in or on mushrooms has been set at 10 ppm.

Tolerance for residues of *endrin* have been established at zero in or on each of cabbage, cottonseed, cucumbers, eggplant, peppers, potatoes, sugar beets, sugar beet tops, summer squash, and tomatoes.

The tolerance of 0.1 ppm for residues of *heptachlor* is extended to include the following raw agricultural commodities: alfalfa, clover, sweet clover, beets, cabbage, carrots, brussels sprouts, kohlrabi, cauliflower, corn, cotton, pasture and range grass, onions, peanuts, radishes, sugarcane, sweet potatoes, turnips and rutabagas.

The tolerance for residues of *basic copper carbonate* in or on pears from post-harvest use of the chemical is 3 ppm of combined copper.

Tolerances for residues of *malathion* have been amended to add grapefruit, lemons, limes, oranges, tangerines, tangelos and kumquats to formerly announced tolerance level.

Tolerance for residues of *zineb* have been established as follows: (a) 7 ppm in or on mushrooms; (b) 1 ppm in or on wheat; and (c) 60 ppm in or on hops.

## New Petitions Filed

Petitions for establishment of tolerances have been filed recently for:

**Sodium-o-phenylphenate**, at 5 ppm for residues in or on apples and pears, by Vis-Ko, Inc., Sumner, Wash.

**Zineb**, at 1 ppm for residues in or on wheat, and at 60 ppm in or on hops, by Rohm & Haas Co., Philadelphia, Pa.

**Malathion**, at 8 ppm for residues in or on grapefruit, lemons, limes, oranges, tangerines, tangelos, kumquats, by American Cyanamid Co., New York City. ▲

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This is our Fig. 645 Nozzle. Used for Scrubbing Acid Phosphate Gases. Made for "full" or "hollow" cone in brass and "Everdur." We also make "Non-Clog" Nozzles in Brass and Steel, and

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The reference booklet or all who are interested in production and use of chemical fertilizers.

**Farm Chemicals, 317 N. Broad St., Phila. 7, Pa.**



# Chemicals

## Cattle Grub Growth Prevented in Tests

Cattle grubs can be prevented from developing within cattle, reports USDA, as demonstrated experimentally with Dow ET-57, an organic phosphate—O, O-dimethyl-O-2, 4, 5-trichlorophenyl phosphorothioate. The material was fed to grub-infected animals and moved through their bodies to destroy the pests where they occurred in the flesh.

Although this is not the first systemic chemical control for grubs, it is the first to prevent their emergence. Tests in Oregon, Texas and South Dakota have given promising results.

First synthesized by the Dow Chemical Co. the material is being made only in laboratory quantities and is not available for large scale tests.

## Monsanto's Radox For Weeds in Corn

One-cultivation corn crops are possible, according to Monsanto Chemical Co., with its new Radox herbicide. It will kill germinating grasses including crab grass, water grass and foxtails without affecting corn or soybeans.

Cost of treatment is set at about \$4.50 an acre, mixed in water and applied as a pre-emergence spray. Final clearance for use on food and feed crops is pending.

## Du Pont Markets Neburon Herbicide

Neburon, a new du Pont substituted urea herbicide, will be introduced in three Eastern cities this year—Hartford, Conn., Syracuse, N. Y. and Columbus, O. It is formulated as a wettable powder containing 18.5 per cent 1-n-butyl-3-(3, 4-dichlorophenyl)-1-methyl urea.

Applied to established turf sufficiently early it gives all-season

control of crabgrass and chicken-weed without harming perennial grasses.

## Frontier Increases Tech. BHC Prices

Price increases on BHC technical, 13 to 15 per cent gamma, have been announced by Frontier Chemical Co. Effective May 15 the price on all spot shipments increased from .7 cents per gamma unit to .75 cents and on June 1 the same increase was effected on all contract shipments.

## Prices Reduced on USS Amm. Nitrate

U. S. Steel Corp. has announced a \$10 per ton reduction in the price of ammonium sulfate, one of the sharpest drops in several years. Under the new schedule, bulk prices will be \$32 per ton f.o.b. all plants but the Geneva and Ironton, Utah works. The new price from these locations had not been determined at press time.

## Liquid Ceresan Seed Treatments Available

Two new additions to the Du Pont family of Ceresan seed disinfectants offer the convenience of liquid treatments, and the safety factor of a red dye which colors the treated seed while retaining the fumigating and residual action of dry mercury compounds.

Based on a combination of two organic mercury materials, the two concentrations are non-freezing (to minus 40° F), relatively non-corrosive and can be used in different types of slurry and liquid seed treating equipment.

According to Du Pont Co. of Canada they are identified as Ceresan 75 and Ceresan 100 and are designed for the protection of small grains from seed and soil borne diseases. Packaging of the materials is in five, 30 and 55 gallon containers.

## Pyrax Pyrophyllite In Granular Form

Pyrax pyrophyllite, the R. T. Vanderbilt Co. diluent, is now available in granular form. Initial production from its Robbins, N. C. plant will include 8/20, 1/30 and 30/60 mesh sizes packed in 50-lb. multiwall paper bags.

The granules are non-hygroscopic and, says Vanderbilt, prevent any tendency toward a sticky or slippery product in storage or following application. They are expected to be of special interest to formulators of fly-baits, granular herbicides, soil insect and mosquito granules and corn borer preparations.

Loading and packaging facilities at the plant will permit mixed carload shipments of granular Pyrax and Pyrax ABB.

Samples are available on request to the Vanderbilt firm, Specialties Dept., 230 Park Ave., New York 17, N. Y.

## Exp. Dow Material Promises Fly Control

A new chemical with promise as a fly killer has been discovered and patented by The Dow Chemical Co. A complex organic phosphate, it is known at present as Dow ET-14.

Termed highly effective for control of house flies, vinegar or fruit flies and certain other insects, it is low in toxicity to warm blooded animals. Only small quantities have been produced to date and the material is supplied at present only to state and Federal research workers.

## Volume of Treated Wood Up 3% in 1955

Reports from the US Forest Service show that the volume of wood treated last year increased about three per cent over 1954. Use of pentachlorophenol increased 18 per cent during 1955 while creosote usage dropped three per cent.



# PEST REPORTS

Presented in cooperation with  
the Economic Insect Survey  
Section, Plant Pest Control  
Branch, Agricultural Research  
Service, USDA.

## Florida Medfly Infestation

The Mediterranean fruit fly (*Ceratitis capitata*), the most important pest of citrus of the fruit fly group, has again been found in Florida. The current infestation was first found April 13 of this year in grapefruit from a backyard in northwest Miami in the vicinity of docks and an airport.

The insect is now known to extend from Pompano Beach about 15 miles north of Fort Lauderdale to Kendall which is about 10 miles south of Miami. At the present time there are no known infestations in commercial orchards. Action has been taken by both the state and Federal governments to delimit the infestation and initiate eradication measures. A Federal quarantine has been established with the effective date May 16.

### Occurred First in 1929

The first occurrence of the Mediterranean fruit fly in Florida was in 1929 when it was discovered in a grove near Orlando. Subsequently, it became scattered over an area of about 10 million acres. After a vigorous and successful campaign of 18 months involving an expenditure of over \$7,000,000 of state and Federal funds, the insect was eradicated and no specimens had been found in Florida until the Miami find in April of this year.

The pest was not known to occur in Central America until March, 1955, when it was found in Costa Rica. By May of last

year it was found established on the central plateau of Costa Rica in an area of 30 by 70 kilometers. An infestation was also found over the mountains to the south. Infestations were heavy in peaches but moderate in oranges and other citrus.

### Various Host Plants

The Mediterranean fruit fly is known to attack over 200 cultivated and wild hosts. Some of the more important hosts include orange, grapefruit, lemon, peach, pear, apricot, apple, coffee, fig, avocado, grape and date. The pest also attacks such vegetables as pepper and tomato.

### Medfly Life Cycle

Under average Hawaiian conditions a generation of the fly is completed in about one month. After emergence from the pupae there is a preoviposition period of about 20 days. Eggs are usually laid in mature-green or -ripe fruit of host varieties.

One female lays 1-10 eggs at a time in punctures it makes in the host fruit and several females may later use the same puncture resulting in perhaps a hundred larvae in the same fruit. Eggs hatch in 2-3 days, the larvae feed for 10-12 days and the pupation period in soil is about 10-11 days. Cooler temperatures extend the life cycle over a period of several months.

Prior to the recent find in this country the Mediterranean fruit

fly was known to occur in over 40 countries, territories or geographical areas.

## S. Alfalfa Aphid Continued Threat

The spotted alfalfa aphid continues to be a serious pest in several states. By late April, 35 per cent of the alfalfa fields in the main alfalfa growing area of Oklahoma had been plowed up. Southwest Missouri reported heavy damage as did southeastern Kansas. The insect was spreading northwest in Kansas and was expected to become a serious threat to alfalfa of the state.

Serious damage was also reported from north and central Texas, and areas of Arkansas, New Mexico, Arizona and Utah. In early April of this year the spotted alfalfa aphid was reported for the first time east of the Mississippi River when specimens were collected on alfalfa at Gainesville, Florida.

## Pea Aphid Serious In Several Areas

The pea aphid has also been a serious pest of alfalfa during April and early May. In Missouri, Arkansas and Kansas the insect has been a serious pest on alfalfa both by itself and in a complex with the spotted alfalfa aphid. Other states reporting heavy populations of the pea aphid include Arizona, Louisiana, Illinois, Utah, Texas and Delaware. Alfalfa weevil larval activity ranged from light to heavy in infected areas of Virginia,

## EXECUTIVE WANTED

**WANTED: FERTILIZER EXECUTIVE**, to take over complete operation as Corporation President, in charge of efficient Mixing Plant in Southeast, which is well-situated for growth. Business adequately financed, doing about 8,000 Tons, which needs expansion. Applicant, obviously, must have sales and credit ability and some knowledge of manufacturing. Remarkable opportunity for a young man to build for the future, or an older man to obtain more relaxation than with a big corporation. Owners aggressive but live too far away to actively participate. Possibility of applicant purchasing some stock either outright or on option should he desire. All replies strictly confidential, and no possibility of applicant's inquiry reaching his present employer. Address "540" care FARM CHEMICALS, Philadelphia 7, Pa.

Maryland, Delaware and Pennsylvania.

## Minn. Corn Borer Mortality Reported

The winter mortality of European corn borer has been figured at 23 per cent in southern two-thirds of Minnesota and populations that have survived the winter are sufficient to cause damaging infestations in several areas of the state. Borer pupation had reached 40 per cent at Bridgeville, Delaware, April 23.

## Small Grain Pests Heavy During April

Small grain insects which caused concern during late April and early May included the greenbug and the brown wheat

JUNE, 1956

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Help wanted, positions wanted, used machinery and business opportunities are now charged at only 10 cents per word, \$2.00 minimum. Count box number as five words.

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inch. Ads over the minimum are accepted only in multiples of one half inch.

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**Closing date: 10th of preceding month**

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Experienced in selling nitrogen products or other fertilizer materials to fertilizer manufacturers required.

Salesmen are expected to become familiar with the technology of ammoniating solution used in mixed fertilizer manufacture.

Duties will be to sell the company's nitrogen products to fertilizer manufacturers.

In reply state personal data, education, experience, and salary requirements.

*Inquiries held confidential.*

Address reply to:

**SOHIO CHEMICAL CO.  
Industrial Relations Div.,  
Box 628, Lima, Ohio**

**POSITION WANTED:** Young man, married, 32, graduate agronomist midwest—six years experience fertilizer production—desires position where hard work and initiative are rewarded. Address "535" care FARM CHEMICALS, Philadelphia 7.

**FOR SALE:** Slightly used Fischer and Porter automatic flowraters. One for nitrogen solutions 1,500 to 15,000 pounds per hour range; one for sulfuric acid 800 to 8000 pounds per hour. Complete specifications on request. Simonsen Mill, Quimby, Iowa.

mite. During late April heavy populations of the greenbug were reported from localized areas of Utah, New Mexico, Texas, Oklahoma, Kansas and Missouri. The brown wheat mite has been reported in damaging numbers from Utah, Colorado and Kansas. Damage was reported earlier from Texas and Oklahoma but populations are now on the decrease.

## Texas Cotton Aphids

Cotton aphids were of wide concern in Texas with serious

damage in the Lower Rio Grande Valley. Boll weevil and bollworms were also damaging cotton in the latter area while seed-corn maggot caused severe loss on germinating cotton in Alabama.

## Tobacco Insects

Among the tobacco insects attracting most attention were budworms, green peach aphid and grasshoppers in Georgia and flea beetles in North Carolina.

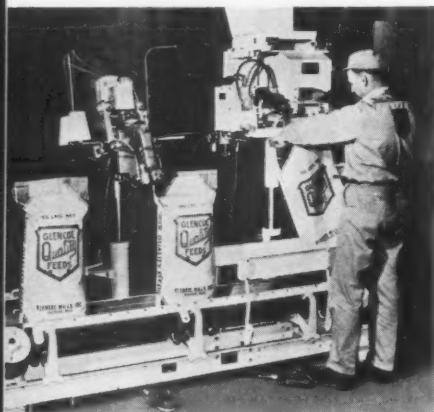
**See page 66 for more news about the Medfly**

## Equipment & Supplies

### Bemis Packer for Medium Operations

Bemis Bro. Bag Co. has introduced a Packer-Ette automatic bag packer designed for speed and economy in medium sized packing operations. Bag capacities range from 25 to 150 lb. sizes with high accuracy.

Weight tolerances are controlled by a two-stage pulsating feeder tray which first feeds rapidly for speed of operation and then more slowly at a rate that can be controlled for accuracy. Capable of handling any material that establishes an angle of repose the unit



has a maximum height of 97½ inches and a shipping weight of only 600 pounds. For information

**Circle 207 on Service Card**

### Transland to Flight Test Ag-2 Airplane

Transland Co.'s Ag-2 dust-spray plane flight date is scheduled for this month. The firm will test two of the units simultaneously to qualify for CAA tests and to gain the earliest possible delivery date.

Highlights of this all-purpose ag-plane include payload exceeding 2,000 lbs., rugged construction, easy maintenance, over 40 per cent reserve power and built-in pilot safety features. The payload can include all dust in a 53

cu. ft. hopper, 250 gallons of liquid in ground accessible wing tanks or combinations of both.

The sales program will be conducted through direct franchised dealers with exclusive and protected territories. Also included in the franchise is a spare parts program.

### Krause Applicator in Do-It-Yourself Kit

Krause Corp. has introduced a do-it-yourself liquid fertilizer applicator in kit form for tractor mounting. Selling at about \$250 it includes the well known Krause-Liberty hose pump.

The design is said to eliminate corrosion and vapor lock problems while reducing upkeep to a minimum. For a folder

**Circle 208 on Service Card**

### No Clogging with New S/S Relief Valve

Spraying Systems' new 6815 pressure relief valve for use on all types of farm spraying equipment is designed to prevent clogging and plugging. Special inner rib construction of the valve body permits full flow of liquid around the shut-off piston, preventing salting out of



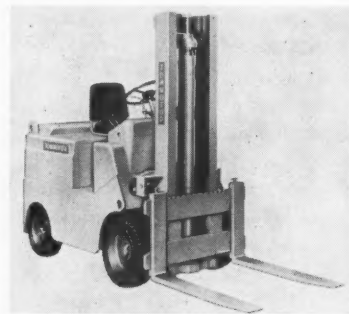
chemicals.

Full flow from supply lines up to ¾ inch at normal pressures can be handled because of the large internal valve area. The piston assembly is mounted within the valve chamber without the use of gaskets. Another feature is a double spring—higher tension for higher pressures and a lower tension spring for accurate control at lower pressures. For a data sheet

**Circle 209 on Service Card**

### Pace-Maker Fork Trucks by Towmaker

New precision power steering, fast automatic transmission and a more positive-acting hydraulic system are some of the features announced for the Pace-Maker



line of fork lift trucks just released by Towmotor. A wide range of lifting capacities from 6,000 to 11,000 pounds is available in gasoline, diesel and L-P gas powered units.

Creep control has been incorporated in the new design, permitting the operator to inch his truck forward while maintaining maximum engine speed for lifting. Other features include functional body design, top maneuverability and adjustable off-center seating for maximum visibility. For detailed information

**Circle 210 on Service Card**

### Gandy Unit Applies Granular Pesticides

The new Gandy Hi-Lo Insecticide Applicator drops metered amounts of insecticide granules into corn whorls to kill corn borers as they attempt to enter the stalk. Produced by the E. S. Gandrud Co., the unit adjusts to heights of 2½ to five feet and spreads a 12- to 14-inch ribbon of granules over each of four rows.

A tractor-drawn unit, the applicator drops the granules after plants have returned to an upright position and are best able to catch and hold the insecticide. For more information write to Gandrud at Owatonna, Minn.

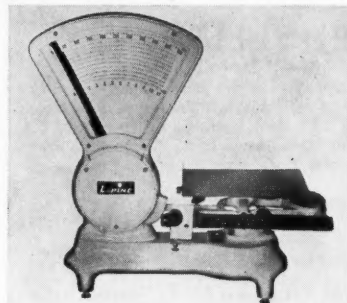
FARM CHEMICALS



## La Pine Automatic Self-Balancing Scale

Materials can be weighed in two to four seconds on a new automatic self-balancing scale from Arthur S. La Pine. Weight can be read to one gram or 1/100 pound directly on the indicating dial, and an adjustable hydraulic damper brings the indicator to rest in 2½ oscillations.

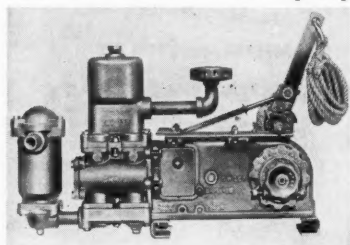
The dial reads weights to 500 grams or 1.1 pound and total



capacity of 5,000 grams or 11.1 pounds is attained with a poise sliding on a notched beam. Scale sensitivity is ¼ gram and accuracy is 1/100 of one per cent of full scale.

## Dempster Mill Pump For Liquid Fertilizers

A new Dempster Mill solutions metering pump is designed specifically for application of liquid fertilizers by sub-surface injection or by spraying the soil surface. Features of the Model S pump



include simplicity in setting and operation and a unique positive double-acting piston which permits both greater accuracy and capacity.

The unit can be used with the Dempster Model S (solutions) Liquijector or similar type applicator. It is termed a companion unit to the Liquijector anhydrous

ammonia applicator pump introduced last year. For information

**Circle 211 on Service Card**

## Strength End Sack Produced by Bemis

A sewn multiwall bag with reinforced end construction has been released by Bemis Bro. Bag. The reinforcement on this Strength-End sack consists of

kraft paper strips between plies at the bag's top and bottom, giving the effect of an extra ply at points where most breakage occurs.

The construction can be used to increase bag strength at critical points at less cost than adding an additional ply of paper or it can reduce bag cost without sacrificing too much strength by eliminating a ply. For information

**Circle 212 on Service Card**



**EXACT  
WEIGHT**

**WEIGHING  
MACHINE**

*with air-operated valve*

**BETTER CONTROL — SMOOTHER OPERATION** are the features of this EXACT WEIGHT sacker. It is semi-automatic — operator pushes button to start cycle. Air-operated valve closes automatically from bulk to trickle feed and cuts off positively at correct weight. Precision-sensitive scale with visible indication at all times, and dial indication of 1" travel equivalent to 8 ounces of weight, permits adjustment to close tolerance.

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(TRADE NAME)

World's greatest diluent and carrier is non-abrasive, uniform  
and adheres readily to foliage. It is ground in a Raymond  
mill—95% through 325 mesh and has a low pH of 5.1.  
Phyllite is packed in 50 lb. valve bags, 20-ton lots, lowest  
prices on the west coast, f.o.b. plant.

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## St. Regis Prepares Multiwall Manuals

Reference material in phases of multiwall packaging is now available in a series of manuals prepared by St. Regis Paper Co. specialists. Handbooks issued to date include\* palletizing, multiwall bag papers and printing manuals, each illustrated with charts, photographs and drawings. For information

**Circle 213 on Service Card**

## Buckels Elevators

A new series of bucket elevators called Buckels has been designed by The Bucket Elevator Co. to lessen problems of cleanliness and corrosion. Standard units are produced in all stainless steel or carbon steel construction.

One entire side of the casing is removable in panels for thorough cleaning. Five basic models are available for elevating materials from four to 50 feet and to handle capacities to 30 cfm. For a catalog

**Circle 214 on Service Card**

## Suppliers' Briefs

**Arkell & Smiths.** George W. Lucas has been named sales representative of the flexible packaging div. covering New York City and New Jersey from the NYC office.

**Clark Equipt. Co.** Midstate Industrial Trunks, Inc., Massillon, Ohio has been appointed to sell and service Industrial Truck Div. fork trucks, straddle carriers and powered hand trucks.

**Fulton Bag & Cotton Mills.** A majority of the Fulton board has accepted an offer by Shuford & Associates, Atlanta, Ga., to purchase Fulton stock at \$20 per share. A spokesman for the Shuford group has stated that it will continue operations without interruption and have employed Werner Textile Consultants, New York City, as advisors.

Shuford and Associates is composed of A. A. Shuford, Jr., Shuford Mills, Inc., Hickory, N. C.;

Julius Abernethy, Carolina Mills, Maiden, N. C.; and Moses Richter, United Mills, Mt. Gilead, N. C.

**St. Regis Paper Co.** Pacific Waxed Paper Co., Seattle, Wash. has been acquired through an exchange in stock. St. Regis has also offered a share for share exchange of stock in Rhinelander Paper Co. and has gained capital stock representing a 34 per cent interest in Growers Container Corp.

Clyde C. Stinebiser has been named branch manager of the new multiwall bag plant at Kansas City, Mo. and Don R. Russell has been appointed sales representative of the multiwall packaging div. in the Minneapolis, Minn. office.

**Schelm Brothers, Inc.** F. M. "Bud" Chester has been promoted to vice president and plant manager of this East Peoria, Ill. firm. Chester was one of the first to develop aluminum tanks for transporting and storage of liquid nitrogen fertilizer.

# Ashcraft-Wilkinson Co.

**Fertilizer  
Materials**



**Feeding  
Materials**

## ALL FERTILIZER MATERIALS

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**Agricultural Chemicals**

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## by Dr. Melvin Nord

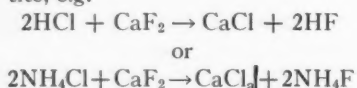
# PATENT REVIEWS

### Fluorine Recovered In P Rock Process

US 2,726,928 issued Dec. 13, 1955 to Clinton A. Hollingsworth and assigned to Smith-Douglass Co., Inc., describes a process for defluorinating phosphate rock in which the fluorine is recovered.

As shown in Fig. 1, the operation is carried out in a retort (1) of silicon carbide, mounted in a fire brick furnace structure (2) and externally heated by fuel burners (3). Phosphate rock is continuously introduced at the top of the retort through a star-wheel feeding device (4), and calcined product is continuously discharged from the bottom (5).

A large excess of a gaseous chloridizing agent ( $\text{HCl}$ ,  $\text{NH}_4\text{Cl}$  or  $\text{Cl}_2$ ) is introduced at the center of the retort through pipe (6). Gases are withdrawn overhead through pipe (7). The chloridation is carried out in the upper half of the retort, chlorine replacing fluorine in the fluorapatite, e.g.



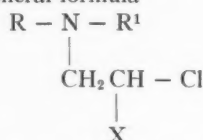
In the lower half, dechloridizing is carried out and much of the substituted chlorine

removed from the chlorapatite. A temperature of 1400–2200° F is maintained in both zones since dechloridizing is not feasible at lower levels. Virtually all the chlorine that replaces fluorine in the apatite is recovered.

The gaseous mixture taken overhead contains the fluorine product (e.g.  $\text{HF}$  or  $\text{NH}_4\text{F}$ ), excess of chloridizing agent, chlorine and any other gases present. It is drawn by gas pump (8) from the retort and through condenser (9) where the fluorine content is removed by condensation (e.g. as  $\text{HF}$ ).  $\text{HCl}$  (or other) make-up gas is added (10). Since the fluorine is condensed as  $\text{HF}$  in the illustration shown, make-up hydrogen is added at (11).

### Noncorrosive Weed Killers to Monsanto

US 2,730,440 issued Jan. 10, 1956 to John K. Fincke, and assigned to Monsanto Chemical Co., describes a class of stable, noncorrosive herbicides having the general formula



where R and  $\text{R}^1$  are hydrogen or alkyl (up to eight carbons) and X is hydrogen or methyl, e.g. *p*-chloroethyldiethylamine (or its hydrochloride).

### New Legume Seed Inoculation Method

US 2,726,948 issued Dec. 13, 1955 to Robt. M. Erickson and assigned to Agricultural Laboratories, Inc. relates to inoculation of legume seeds with Rhizobia bacteria.

Improved effectiveness of in-

oculation is obtained by minimizing the high mortality rate of the bacteria when placed in contact with the carrying medium, humus, or peat, because of the acidity of the latter. If charcoal is combined initially with the peat and the bacteria are introduced to the mixture in sterile water, the initial bacteria mortality is overcome. This results from neutralization of the acidic peat by alkaline constituents of the charcoal.

The finely divided charcoal also aids adherence of the inoculant to the seed.

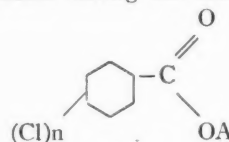
### Selective Herbicide For Grass Control

US 2,726,946 issued Dec. 13, 1955 to Dorsey R. Mussell and assigned to The Dow Chemical Co. uses 4-chloro-2-nitrophenyl ether to suppress the growth of germinant seeds and emerged seedlings of many grass species.

According to the patent, it is possible to effect a selective treatment of mixed seedlings of grasses and broadleaf crop plants. The compound has a high degree of persistency in the soil and gives excellent control of grasses for periods ranging up to several months. However, it should not be applied to plant foliage as it has a tendency to brown the foliage.

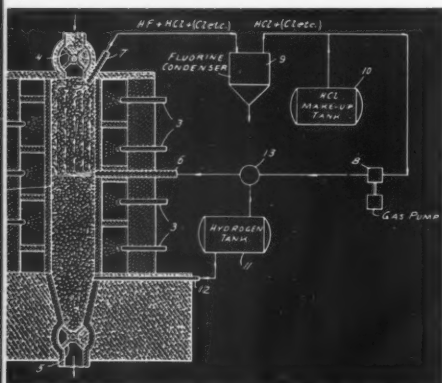
### Herbicide Assigned to B. F. Goodrich

US 2,726,947 issued Dec. 13, 1955 to Luther L. Baumgartner and assigned to the B. F. Goodrich Co. provides a class of herbicides having the formula



where n is 3–5 and A is an organic group derived from any alcohol (preferably one–12 carbon atoms). Thus the compounds are all esters of polychlorobenzoates. ▲

FARM CHEMICALS





POTASH  
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UREA, 45½% & 46% N.  
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BAGS—  
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Columbus, Georgia  
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Winona, Minnesota

Houston, Texas  
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# Fertilizer Materials Market

## New York

May 12, 1956

**Sulfate of Ammonia.** One leading producer announced price reductions effective May 7 up to \$13 per ton and quotes this material at \$32 per ton, f.o.b. Eastern points. This is the largest reduction in price for this material in recent years and was looked upon as a forerunner of other price cuts in competing materials.

**Urea.** This market held steady and demand increased slightly from the fertilizer trade. Some imported material arrived from time to time at various ports.

**Nitrogenous Tankage.** This market was only nominal and competition appeared for various inquiries as they came on the market. Prices ranged from \$3 to \$4 per unit of ammonia (\$3.64 to \$4.86 per unit N) according to production point and demand was limited to buyers' immediate needs. Because of present low prices, no foreign material will come in.

**Castor Pomace.** As the season dragged along, some shading of prices was reported down to \$35 per ton for some lots. The market was quoted at \$35 to \$40 per ton, f.o.b. production points and demand was rather limited.

**Organics.** Demand continued poor for the organic materials of fertilizer grade but some interest was recently shown by feed buyers for tankage and blood. Last sales of tankage were made at \$4.25 per unit of ammonia (\$5.16 per unit N) f.o.b. Eastern ship-points and blood was reported sold at \$4.50 per unit of ammonia (\$5.47 per unit N). Soybean meal enjoyed a considerable advance in the last few weeks and sold at \$58 per ton in bulk, f.o.b. Decatur, Ill.

**Fish Meal.** This material recently showed more strength because of small stocks on hand. Sales were made of fish scrap at \$135 per ton f.o.b. fish factories. Imported material was available at slightly lower prices. As soon as the fishing season starts, lower prices are expected.

**Bone Meal.** Weakness appeared in this market and while offerings were available at \$60 per ton, f.o.b. production points, it was said better prices could be obtained with firm orders. The late spring and wet weather were blamed for lack of demand.

**Hoof Meal.** Little activity was reported in hoof meal with the main portion of the present production going for industrial purposes and last sales made at \$6.50 (\$7.90 per unit N) f.o.b. Chicago.

**Feather Meal.** Present market quoted at \$4.50 to \$4.75 per unit of ammonia (\$5.47 to \$5.77 per unit N) delivered Eastern points in bulk.

**Superphosphate.** Stocks were ample at all points and triple superphosphate was said to be in much better supply. Most buyers were anxious to cut down their inventories before the end of this season.

**Potash.** Shipments continue slow and considerably behind last year, but producers are still hoping the month of May will bring increased demand. Scattered lots of imported potash continue to arrive at various Atlantic ports but this material cannot be shipped very far inland and compete with domestic material.

## Philadelphia

May 12, 1956

The big feature in the present raw materials market is the large reduction in price of sulfate of

ammonia. Meanwhile, blood, tankage and fish scrap have advanced. Superphosphate and potash remain rather quiet, and the materials movement as a whole has been disappointing.

**Sulfate of Ammonia.** Stocks continue to accumulate and demand is lagging. Coke-oven producers have announced a price cut, east of the Rockies, to \$32 per ton, effective May 7.

**Nitrate of Ammonia.** No price changes are reported. Supplies are ample but demand is missing.

**Nitrate of Soda.** Prices remain the same as previously listed, and there are sufficient stocks to meet any inquiries.

**Blood, Tankage, Bone.** Blood and tankage are in stronger position, being quoted at \$5 to \$5.50 per unit ammonia (\$6.08 to \$6.68 per unit N) in the West, and \$4.50 to \$5 (\$5.47 to \$6.08 per unit N) in the East. Bone meal is in poor demand at \$60 per ton.

**Castor Pomace.** Demand is only fair and some sales have been reported at \$35 per ton—a drop of \$5 per ton.

**Fish Scrap.** This is in quite a strong position, with fair demand and supply not excessive. Price has advanced to \$135 per ton for scrap and \$139 for meal.

**Phosphate Rock.** Supply is plentiful, with demand rather below normal, and movement moderate. Prices remain unchanged from previous list.

**Superphosphate.** This seems to be doing a little better and increase in the demand is looked for when the weather becomes more nearly normal.

**Potash.** There is moderate seasonal movement with the market in fairly good shape, but the situation in general remains disappointing.

# Statistics

## Phosphate Rock Output Down First Half '55

In the first half of 1955, domestic output of phosphate rock and total marketable production decreased 20 and 12 per cent respectively to 25,842,000 tons and 6,873,166 tons. In all producing areas—Florida, Tennessee and the Western states, reports the Bureau of Mines, marketable production was lower than in the first half of the previous year.

During the 1955 period, tonnage of phosphate rock sold or used by producers in the US dropped three per cent. Sales or use for agricultural purposes of 4,038,177 tons included 2,414,922 tons for ordinary superphosphate; 1,050,452 tons for triple superphosphate; 341,093 tons for direct soil application; 88,353 tons for stock and poultry feed; 8,353 tons for use as fertilizer filler and 134,684 tons used for other pur-

poses including nitrophosphate.

Stocks in producers' hands on June 30 rose slightly from 2,930,000 tons in 1954 to 2,953,000 tons in 1955.

## Super Production Drops in February

February production of superphosphate and other phosphatic fertilizers dropped five per cent from the January output to 250,882 short tons (100 per cent APA). Shipments during the month totaled 177,042 tons, up 10 per cent from the previous month. Stocks on hand at the end of February were 1 per cent less than those held on January 31.

Preliminary totals covering the first half of the 1955-56 crop year show these changes from the previous period:

Grade	Production	Shipments
Normal.....	1	5
Enriched.....	21	8
Concentrated.....	19	14
Wet-base goods....	33	53

## First Quarter Drop In Potash Deliveries

In the first quarter of 1956, potash salt and K<sub>2</sub>O deliveries decreased nearly three per cent according to the American Potash Institute. A total of 1,114,329 tons of potash salts containing 656,580 tons of K<sub>2</sub>O were delivered.

Deliveries for agricultural purposes in the US, Canada, Cuba, Puerto Rico and Hawaii comprised 1,021,766 tons of salts equivalent to 599,634 tons of K<sub>2</sub>O (626,630 tons K<sub>2</sub>O in the 1955 period). Included were 561,538 tons of K<sub>2</sub>O as muriate of potash, 37,598 tons as sulfate of potash-magnesia and 507 tons as manure salts.

Deliveries for chemical purposes increased 22 per cent during the period and exports to other than Institute countries were up 17 per cent.

## Production — February, 1956

Compiled from Government Sources

Chemical	Unit	February		January
		1956	1955	1956
Ammonia, synth. anhydrous.....	s. tons	275,121 <sup>1</sup>	249,398	*279,055
Ammonia liquor, coal & coke (NH <sub>3</sub> content) (Including diamm. phosphate & ammon. thiocyanate)	pounds	3,573,177	2,806,599	3,793,907
Ammonium nitrate, fert. grade (100% NH <sub>4</sub> NO <sub>3</sub> ).....	s. tons	164,221	148,645	177,150
Ammonium sulfate				
synthetic (technical).....	s. tons	104,395	98,387	95,387
coke-oven by-product.....	pounds	158,135,855	143,563,519	167,104,281
BHC (Hexachlorocyclohexane).....	pounds	5,964,043	—	*6,293,746
Gamma content.....	pounds	899,911	—	*1,095,157
Copper Sulfate (Gross).....	s. tons	—	—	—
DDT.....	pounds	10,742,191	—	11,592,197
2,4-D Acid.....	pounds	2,500,072	—	2,761,627
esters and salts.....	pounds	2,093,147	—	*1,405,005
esters and salts (acid equiv.).....	pounds	1,654,742	—	*1,098,889
Lead Arsenic (acid & basic).....	s. tons	560	—	1,256
Phosphoric acid (50% H <sub>3</sub> PO <sub>4</sub> ).....	s. tons	313,691	289,323	*329,101
Sulfur, Native (Frasch).....	l. tons	476,313	400,270	531,330
Recovered.....	l. tons	37,100	28,100	40,900
Sulfuric acid, gross (100% H <sub>2</sub> SO <sub>4</sub> ).....	s. tons	1,350,401	1,265,996	1,437,000
Chamber Process (100% H <sub>2</sub> SO <sub>4</sub> ).....	s. tons	209,127	225,969	218,022
Contact Process (100% H <sub>2</sub> SO <sub>4</sub> ).....	s. tons	1,141,274	1,040,027	1,218,978
Superphosphate (100% APA).....	s. tons	240,882	210,165	*253,904
Normal (100% APA).....	s. tons	148,175	144,717	155,168
Enriched (100% APA).....	s. tons	1,736	3,585	2,147
Concentrated (100% APA).....	s. tons	74,310	61,225	*77,793
Wet Base (100% APA).....	s. tons	279	638	662
other phos. fertilizers.....	s. tons	16,382	—	*18,134
2,4,5-T Acid.....	pounds	403,557	—	408,070
Urea.....	pounds	66,383,100	—	71,908,760

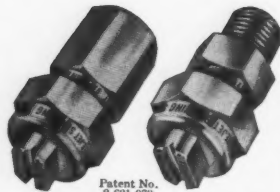
\* Revised.

\*\* Partly estimated.

<sup>1</sup> Includes quantities for plant previously not reporting.

for precision

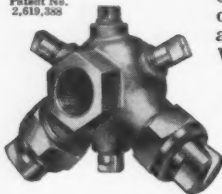
**TeeJet®**



Patent No.  
2,621,078

World famous nozzles for boom and portable sprayers. Choice of over 400 interchangeable orifice tips in flat spray, cone and straight stream types. Write for Catalog 30.

Patent No.  
2,619,388



for broadcasting

**BoomJet®**

Spray up to 66 feet wide with one assembly. For spraying grains, grasses and liquid fertilizers. Write for Bulletins 66 and 71.

for gun spraying

**GunJet®**

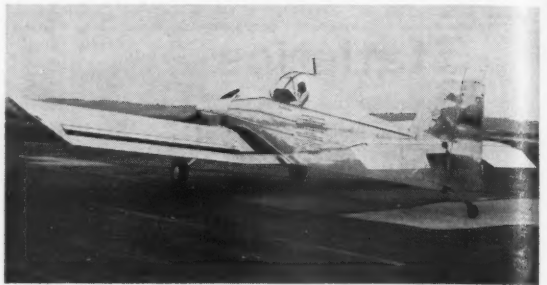


Patent Pending

Adjustable spray by trigger action or rotating handle. For pressures up to 800 lbs. Write for Bulletins 65, 69 and 80.

**SPRAYING SYSTEMS CO.**

3280 Randolph Street • Bellwood, Illinois



USDA photo

The Ag-1, designed exclusively for agricultural use, was constructed under CAA contract at Texas A & M.

*Flying*

for Business

**F**LYING for business purposes is a time-saving proposition to which you might want to give serious consideration. A study by the Civil Aeronautics Administration shows that during 1954 it accounted for half of all general aviation (all operations but scheduled air carrier) miles logged during the year.

Flying for business accounted for 553 million air miles and early indications are that 1955 air-miles traveled was even higher. Of the 61,290 general aviation aircraft flown, 18,570 were engaged primarily in business transportation. A total of 9,750 of these were owned by business concerns, 8,610 by individuals and the balance by government agencies.

Another 29,350 aircraft were used for pleasure only, or for a combination of business and pleasure with the latter predominating. Total hours flown in this category were 2,263,000 compared to 3,710,000 for business planes.

### Spraying Up, Dusting Decrease

Hours flown in spraying, dusting, seeding and other applications of the 4,210 aircraft engaged primarily in such work totaled 668,000 hours. For the first time spraying passed dusting with a 15 per cent increase in gallons of liquid dispensed upping the total to 91 million gallons and a drop in dry materials dispensed of six per cent to 628 million pounds of seed and chemicals.

Transportation for hire flying showed a slight increase with some 2,170 aircraft flying 619,000 hours.

Trends noted by CAA are the growing use of multi-engine aircraft, up 12 per cent in numbers to 2,750 and a continued gain in executive and other business usage of general aviation aircraft. ▲

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**Magnesia for Agriculture**

EMJEO (80/82% Magnesium Sulphate)  
Calcined Brucite (fertilizer grade) 65% MgO

**POTNIT**

(95% Nitrate of Potash) for  
Specie. Mixtures and Soluble Fertilizers  
Other Fertilizer Materials



**BERKSHIRE**

**ISCO**

**Insecticides—**

**Fungicides**

Mercury Compounds  
for Agricultural Use

**Dithiocarbamates**

Fenic—Zinc

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GRAYBAR BUILDING

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# FEEDING AND FERTILIZER MATERIALS

(SINCE 1898)

## SAMUEL D. KEIM

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PHILADELPHIA 7, PA.



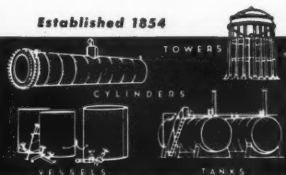
ALUMINUM TANKS

*"Cole" can furnish your  
requirements in tanks  
of Steel, Aluminum and  
Stainless-Steel.*

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MANUFACTURING CO.  
NEWNAN, GA.

Established 1854



### Alphabetical List of Advertisers

American Agricultural Chemical Co., New York City	—
American Potash & Chemical Corp., Los Angeles, Calif.	9
Armour Fertilizer Works, Atlanta, Ga.	61
Ashcraft-Wilkinson Co., Atlanta, Ga.	Back Cover, 16, 59
Atkins, Kroll & Co., San Francisco, Cal.	40
H. J. Baker & Bro., New York City	—
Baughman Mfg. Co., Jerseyville, Ill.	—
Berkshire Chemicals, Inc., New York City	64
Bradley & Baker, New York City	Second Cover
Bradley Pulverizer Co., Allentown, Pa.	—
Burlap Council, New York City	—
Chase Bag Co., Chicago, Ill.	—
Clark Equipt. Co., Benton Harbor, Mich.	39
Clover Chemical Co., Pittsburgh, Pa.	—
E. D. Coddington Mfg. Co., Milwaukee, Wis.	—
Cole, R. D. Mfg. Co., Newman, Ga.	65
Commercial Solvents Corporation, New York City	8
Crowley Tar Products Co., New York City	—
Davison Chemical Co., division of W. R. Grace & Co., Baltimore, Md.	—
Duval Sulphur & Potash Co., Houston, Tex.	16
Edwards Laboratory, Norwalk, Ohio	—
Escambia Bay Chemical Corp., Pensacola, Fla.	—
Exact Weight Scale Co., Columbus, Ohio	57
Finco, Inc., North Aurora, Ill.	—
Geigy Agricultural Chemicals, New York City	—
Grand River Chem. Div., Deere & Co., Tulsa, Okla.	—
Hammond Bag & Paper Co., Inc., Wellsburg, W. Va.	—
Highway Equipment Co., Cedar Rapids, Ia.	—
Hough, The Frank G. Co., Libertyville, Ill.	10, 11
Indian Jute Mills Association, New York City	—
International Minerals & Chemicals Corp., Chicago, Ill., Spec. Prod., Phosphate Chemicals Div.	6, 7
Phosphate Minerals Div.	—
Potash Div.	—
Jackle, Frank R., New York City	61

Keim, Samuel D., Philadelphia, Pa.	65
Kraft Bag Corporation, New York City	—
Link-Belt Co., Chicago, Ill.	1
Lion Oil Company, El Dorado, Ark.	17
Ludlow-Saylor Wire Cloth Co., St. Louis, Mo.	—
Alex. M. McIver & Son, Charleston, S. C.	61
Mississippi River Chem. Corp., St. Louis, Mo.	—
Munson Mill Machinery Co., Utica, N. Y.	—
Monarch Mfg. Works, Inc., Philadelphia, Pa.	52
National Lime & Stone Co., Findlay, Ohio	27
National Potash Co., New York City	5
Nitro-Form Agricultural Chemicals, Woonsocket, R. I.	—
Nitrogen Division, Allied Chemical & Dye Corp., New York City	Back Cover
Pennsylvania Salt Mfg. Co. of Wash., Tacoma, Wash.	—
Phelps-Dodge Refining Corp., New York City	13
Phillips Chemical Co., Bartlesville, Okla.	24
Pioneer Pyrophyllite Producer, Beverly Hills, Calif.	58
Potash Co. of America, Washington, D. C.	Third Cover
Poulsen Co., Los Angeles, Calif.	29
Schmutz Mfg. Co., Louisville, Ky.	35
Shell Chemical Corporation, Denver, Colo.	19
Shuey & Company, Inc., Savannah, Ga.	52
Sinclair Chemicals, Inc., New York City	26
Sohio Chemical Co., Lima, Ohio	15
Southwest Potash Co., New York City	23
Spraying Systems Co., Bellwood, Ill.	64
Stedman Foundry and Machine Co., Inc., Aurora, Ind.	58
Sturtevant Mill Co., Boston, Mass.	37
Stephens-Adamson Mfg. Co., Aurora, Ill.	—
Tennessee Corporation, Atlanta, Ga.	—
Texas Gulf Sulphur Co., New York City	—
Tractomotive Corp., Deerfield, Ill.	—
Union Bag & Paper Corp., New York City	20, 21
U.S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.	Second Cover
United States Potash Co., New York City	2
Wisc. Alumni Research Foundation, Chicago, Ill.	—
Woodward & Dickerson, Inc., Philadelphia, Pa.	57

## editorial

A LARGE-SCALE battle is shaping up in the Dade county area of Florida in an effort to control the Mediterranean fruit fly. It appears to some observers that the pest invaded the area via airplane in goods from overseas. At present the area known to contain infestations stretches from Fort Lauderdale on the north down to Goulds, nearly to Homestead on the south. An outbreak has also been uncovered near a town on the west of Lake Okeechobee.

Actually, the real extent of its occurrence is not known. Activities with insect traps continue so that the area involved can be accurately mapped.

Fortunately, current infestations are not in the major Florida citrus growing areas—the central ridge section and the Indian River locality. The truck crop area near Goulds is affected along with home plantings throughout the infested area.

The President has already asked for appropriation of over one million dollars for a control program, and a bill calling for \$1.25 million is now in committee. This fund is expected to be matched by a like amount from the state of Florida.

A Federal Quarantine is now in effect to control shipments of produce in and out of the area. This move, unanimously endorsed by state and Federal officials during recent meetings, was viewed with alarm by some growers and it is reported that a few even halted their fertilization programs to await official decisions on quarantine and methods of control.

In the actual control program, airplane bait sprays of malathion will be applied in a formulation of two pounds 25 per cent wettable powder malathion, one pound of attractant and one gallon of water per acre. At least three applications of this control material will be made, at approximately 10 day intervals. Ground units will also be used on small infestations and severely affected trees.

Another treatment, for highly susceptible plants, is the use of granular soil insecticides such as dieldrin or heptachlor spread on the ground around the base of such plants.

Dieldrin has also entered the picture in another way—through disposal of infested fruit. This fruit has been picked and bagged in sacks treated with the pesticide, then buried to prevent development of the Medfly larvae. In other cases, trenches have been dug, infected fruit dumped in and covered with insecticide before the trench is refilled with earth.

One fortunate aspect of the situation is experience already gained in fighting this pest in Hawaii

and Spain and in combatting its cousin the Mexican fruit fly. Two experts from Hawaii are now on the Florida scene and a third has flown in from Mexico City to assist in planning the efforts.

Growers have been urged to pick their fruit at the usual time and, if needed, fumigation can be utilized with ethylene dibromide, methyl dibromide or through vapor heat treatments.

THE impact of added nitrogen facilities was very evident in USDA's supplemental fertilizer situation report for the 1955-56 season. Pointing out that from 1949 until 1954, January peak-of-season stocks, including by-product material, in the hands of producers varied from 40,000 to about 80,000 tons of nitrogen, it states that stocks on January 31 of this year totaled 289,400 tons.

Between February 1 and March 1 stocks usually decreased by about 15,000 tons but this year an increase of 2,000 tons was noted. In addition to these figures, it is believed that  $\text{NH}_3$  distributors and applicators had at least 150,000 tons of nitrogen in their tanks at the end of January.

Supply of fertilizer nitrogen for the current crop year is estimated to be 2,303,000 tons—2.3 per cent over 1954-55. If prospects are fulfilled, total production of nitrogen this season will top 1954-55 output by seven per cent—plus another five per cent to account for excess carryover from the previous year.

Looking at the overall plant food situation, USDA sees about the same movement of nutrients as in 1954-55 although less total tonnage will move. As noted in a previous issue, many in the industry look for a drop of about five per cent in tonnage.

The figures aren't unexpected. With the unfavorable weather conditions that occurred through much of the country during the winter, with farm income down and legislators unable to act promptly or decisively on farm legislation, matching 1954-55 plant nutrient movement appears a rather good record.

WE TAKE considerable pride in announcing that FARM CHEMICALS has received its fifth consecutive public interest award from the National Safety Council. The 1955 awards for "exceptional service to safety" went to a total of 38 specialized magazines, primarily trade publications.

The honor must be shared with the fertilizer section of National Safety Council and the men who have worked constantly in developing the industry safety program. Their cooperation enabled FARM CHEMICALS to publish much of the safety material carried in these pages during the year.

G. P. T., Jr.  
Editor

FARM CHEMICALS

# Buyers' Guide

## Classified Index to Advertisers in 'Farm Chemicals'

### ALDRIN

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Shell Chemical Co., Agr. Chem. Div., N.Y.C.

### AMMONIA—Anhydrous and Liquor

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Commercial Solvents Corporation, New York City  
Escambia Bay Chem. Corp., Pensacola, Fla.  
Grand River Chem. Div., Deere & Co., Tulsa, Okla.  
Lion Oil Co., El Dorado, Ark.  
Mississippi River Chem. Co., St. Louis, Mo.  
Nitrogen Div., Allied Chemical & Dye Corp., N.Y.C.  
Phillips Chemical Co., Bartlesville, Okla.  
Sinclair Chemicals, Hammond, Ind.  
Sohio Chemical Co., Lima, O.

### AMMONIUM NITRATE

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Commercial Solvents Corporation, New York City  
Escambia Bay Chem. Corp., Pensacola, Fla.  
Lion Oil Co., El Dorado, Ark.  
Mississippi River Chem. Co., St. Louis, Mo.  
Phillips Chemical Co., Bartlesville, Okla.

### AMMONIUM SULFATE

See Sulfate of Ammonia

### AMMONIUM SULFATE NITRATE

Atkins, Kroll & Co., San Francisco, Calif.

### BAGS—BURLAP

The Burlap Council, New York City  
Chase Bag Co., Chicago, Ill.

### BAGS—COTTON

Chase Bag Co., Chicago, Ill.

### BAGS—Multiwall-Paper

Chase Bag Co., Chicago, Ill.  
Kraft Bag Corporation, New York City  
Union Bag & Paper Corp., New York City

### BAGS—Dealers and Brokers

Ashcraft-Wilkinson Co., Atlanta, Ga.  
McIver & Son, Alex. M., Charleston, S. C.

### BAG PRINTING MACHINES

Schmutz Mfg., Louisville, Ky.

### BAG FILLING MACHINES

E. D. Coddington Mfg. Co., Milwaukee, Wisc.  
Kraft Bag Corporation, New York City  
Stedman Foundry and Machine Co., Aurora, Ind.  
Union Bag & Paper Corp., New York City

### BHC AND LINDANE

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Pennsylvania Salt Mfg. Co., of Wash., Tacoma, Wash.

### BIN LEVEL CONTROLS

Stephens-Adamson Mfg. Co., Aurora, Ill.

### BIN DISCHARGERS

Stephens-Adamson Mfg. Co., Aurora, Ill.

### BONE PRODUCTS

American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Jackle, Frank R., New York City  
Woodward & Dickerson, Inc., Philadelphia, Pa.

### BORAX AND BORIC ACID

American Potash & Chemical Corp., Los Angeles, California  
Woodward & Dickerson, Inc., Philadelphia, Pa.

### BOX CAR LOADERS

Stephens-Adamson Mfg. Co., Aurora, Ill.

### BROKERS

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
Jackle, Frank R., New York City  
Keim, Samuel D., Philadelphia, Pa.  
McIver & Son, Alex. M., Charleston, S. C.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

### BULK TRANSPORTS

Baughman Mfg. Co., Jerseyville, Ill.  
Highway Equipment Co., Cedar Rapids, Ia.

### CALCIUM AMMONIUM NITRATE

Atkins, Kroll & Co., San Francisco, Calif.  
McIver & Son, Alex. M., Charleston, S. C.

### CALCIUM ARSENATE

American Agricultural Chemical Co., N. Y. C.

### CALCIUM NITRATE

Atkins, Kroll & Co., San Francisco, Calif.

### CAR PULLERS

Stephens-Adamson Mfg. Co., Aurora, Ill.

### CARS AND CART

Stedman Foundry and Machine Co., Aurora, Ind.

### CASTOR POMACE

Ashcraft-Wilkinson Co., Atlanta, Ga.  
McIver & Son, Alex. M., Charleston, S. C.

### CHEMISTS AND ASSAYERS

Shuey & Co., Inc., Savannah, Ga.

### CHLOROBENZILATE

Geigy Agr. Chems. Div., Geigy Chem. Corp., N.Y.C.

### CHLORDANE

Ashcraft-Wilkinson Co., Atlanta, Ga.

### CLAY

Ashcraft-Wilkinson Co., Atlanta, Ga.

### CONDITIONERS

Ashcraft-Wilkinson Co., Atlanta, Ga.  
H. J. Baker & Bro., New York City  
Jackle, Frank R., New York City  
Keim, Samuel D., Philadelphia, Pa.  
McIver & Son, Alex. M., Charleston, S. C.  
National Lime & Stone Co., Findlay, Ohio

### CONVEYORS

Baughman Mfg. Co., Jerseyville, Ill.  
Link-Belt Co., Chicago, Ill.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Stephens-Adamson Mfg. Co., Aurora, Ill.  
Sturtevant Mill Co., Boston, Mass.

### COPPER SULFATE

Phelps-Dodge Refining Corp., New York City  
Tennessee Corp., Atlanta, Ga.

### COTTONSEED PRODUCTS

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
Jackle, Frank R., New York City  
Woodward & Dickerson, Inc., Philadelphia, Pa.

### DDT

Ashcraft-Wilkinson Co., Atlanta, Ga.

### DIAZINON

Geigy Agr. Chems. Div., Geigy Chem. Corp., N.Y.C.

### DIELDRIN

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Shell Chem. Corp., Agr. Chem. Div., N.Y.C.

### DILUENTS

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Pioneer Pyrophyllite Producers, Beverly Hills, Calif.

### DITHIOCARBAMATES

Berkshire Chemicals, New York City

### ELEVATORS

Link-Belt Co., Chicago, Ill.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Stephens-Adamson Mfg. Co., Aurora, Ill.

### ENDRIN

Shell Chem. Corp., Agr. Chem. Div., N.Y.C.

### ENGINEERS—Chemical and Industrial

Stedman Foundry and Machine Co., Aurora, Ind.  
Sturtevant Mill Co., Boston, Mass.

### FERTILIZER—Liquid

Clover Chemical Co., Pittsburgh, Pa.

### FERTILIZER—Mixed

American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Davison Chemical Co., div. of W. R. Grace & Co., Baltimore, Md.  
International Min. & Chem. Corp., Chicago, Ill.

### FILLERS

Bradley & Baker, N. Y. C.

### FISH SCRAP AND OIL

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
Jackle, Frank R., New York City  
Woodward & Dickerson, Inc., Philadelphia, Pa.

### FULLER'S EARTH

Ashcraft-Wilkinson Co., Atlanta, Ga.

### FUNGICIDES

American Agricultural Chemical Co., N. Y. C.  
Berkshire Chemicals, New York City  
Tennessee Corp., Atlanta, Ga.

### HERBICIDES

American Potash & Chemical Corp., Los Angeles, California  
Lion Oil Company, El Dorado, Ark.

### HERBICIDES—Oils

Lion Oil Company, El Dorado, Ark.

### HOPPERS & SPOUTS

Stedman Foundry and Machine Co., Aurora, Ind.  
Sturtevant Mill Co., Boston, Mass.

### IMPORTERS, EXPORTERS

Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Berkshire Chemicals, New York City  
Woodward & Dickerson, Inc., Philadelphia, Pa.

### INSECTICIDES

American Agricultural Chemical Co., N. Y. C.  
American Potash & Chemical Corp., Los Angeles, California  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Berkshire Chemicals, New York City  
Fairfield Chem. Div., Food Mach. & Chem. Corp., New York City  
Geigy Agr. Chems. Div., Geigy Chem. Corp., N.Y.C.  
Pennsylvania Salt Mfg. Co., of Wash., Tacoma, Wash.  
Shell Chem. Corp., Agr. Chem. Div., Denver, Colo.

### IRON CHELATES

Geigy Agr. Chems. Div., Geigy Chem. Corp., N.Y.C.

### IRON SULFATE

Tennessee Corp., Atlanta, Ga.

### LABORATORY SERVICES

Wisc. Alumni Research Foundation, Madison, Wisc.

### LEAD ARSENATE

American Agricultural Chemical Co., N. Y. C.

### LIMESTONE

American Agricultural Chemical Co., N. Y. C.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
National Lime & Stone Co., Findlay, Ohio

### MACHINERY—Acid Making and Handling

Monarch Mfg. Works, Inc., Philadelphia, Pa.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Sturtevant Mill Co., Boston, Mass.

### MACHINERY—Acidulating

Stedman Foundry and Machine Co., Aurora, Ind.

### MACHINERY—Grinding and Pulverizing

Bradley Pulverizer Co., Allentown, Pa.  
Poulsen Co., Los Angeles, Calif.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Sturtevant Mill Co., Boston, Mass.



# Buyers' Guide

## MACHINERY—Material Handling

Clark Equip't. Co., Construction Mach. Div., Benton Harbor, Mich.  
Hough, The Frank G. Co., Libertyville, Ill.  
Link-Belt Co., Chicago, Ill.  
Poulsen Co., Los Angeles, Calif.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Stephens-Adamson Mfg. Co., Aurora, Ill.  
Sturtevant Mill Co., Boston, Mass.  
Tractomotive Corp., Deerfield, Ill.

## MACHINERY—Mixing and Blending

Munson Mill Mach. Co., Utica, N. Y.  
Poulsen Co., Los Angeles, Calif.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Sturtevant Mill Co., Boston, Mass.

## MACHINERY—Mixing, Screening and Bagging

Poulsen Co., Los Angeles, Calif.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Sturtevant Mill Co., Boston, Mass.

## MACHINERY—Power Transmission

Link-Belt Co., Chicago, Ill.  
Stedman Foundry and Machine Co., Aurora, Ind.

## MACHINERY

### Superphosphate Manufacturing

Link-Belt Co., Chicago, Ill.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Sturtevant Mill Co., Boston, Mass.

## MAGNESIUM SULFATE

Berkshire Chemicals, New York City

## MANGANESE SULFATE

Tennessee Corp., Atlanta, Ga.

## MANURE SALTS

Potash Co. of America, Washington, D. C.

## METHOXYCHLOR

Geigy Agr. Chems., Div., Geigy Chem. Corp., N.Y.C.

## MINOR ELEMENTS

Geigy Agr. Chems. Div., Geigy Chem. Corp., N.Y.C.  
Tennessee Corporation, Atlanta, Ga.

## MIXERS

Munson Mill Mach. Co., Utica, N. Y.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Sturtevant Mill Co., Boston, Mass.

## NITRATE OF POTASH

Berkshire Chemicals, New York City

## NITRATE OF SODA

American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
McIver & Son, Alex. M., Charleston, S. C.  
Nitrogen Div., Allied Chemical & Dye Corp., N.Y.C.  
International Min. & Chem. Corp., Chicago, Ill.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

## NITROGEN SOLUTIONS

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Commercial Solvents Corporation, New York City  
Escambia Bay Chem. Corp., Pensacola, Fla.  
Lion Oil Company, El Dorado, Ark.  
Mississippi River Chem. Co., St. Louis, Mo.  
Phillips Chemical Co., Bartlesville, Okla.  
Sinclair Chemicals, Hammond, Ind.  
Sohio Chemical Co., Lima, O.

## NITROGEN MATERIALS—Organic

American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
International Min. & Chem. Corp., Chicago, Ill.  
Jackie, Frank R., New York City  
McIver & Son, Alex. M., Charleston, S. C.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

## NOZZLES—Spray

Monarch Mfg. Works, Philadelphia, Pa.  
Spraying Systems Co., Bellwood, Ill.

## PARATHION

Ashcraft-Wilkinson Co., Atlanta, Ga.

## PHOSPHATE ROCK

American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
International Min. & Chem. Corp., Chicago, Ill.  
McIver & Son, Alex. M., Charleston, S. C.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

## PHOSPHORIC ACID

American Agricultural Chemical Co., N. Y. C.

## PLANT CONSTRUCTION—Fertilizer and Acid

Link-Belt Co., Chicago, Ill.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Sturtevant Mill Co., Boston, Mass.

## POTASH—Muriate

American Potash & Chemical Corp., Los Angeles, California  
Ashcraft-Wilkinson Co., (Duval Potash) Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
Duval Sulphur & Potash Co., Houston, Tex.  
International Min. & Chem. Corp., Chicago, Ill.  
McIver & Son, Alex. M., Charleston, S. C.  
National Potash Co., N. Y. C.  
Potash Co. of America, Washington, D. C.  
United States Potash Co., N. Y. C.

## POTASH—Sulfate

American Potash & Chemical Corp., Los Angeles, California  
International Min. & Chem. Corp., Chicago, Ill.  
Potash Co. of America, Washington, D. C.

## PRINTING PRESSES—Bag

Schmuts Mfg. Co., Louisville, Ky.

## PYROPHYLLITE

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Pioneer Pyrophyllite Producers, Beverly Hills, Calif.

## REPAIR PARTS AND CASTINGS

Stedman Foundry and Machine Co., Aurora, Ind.

## SCALES—Including Automatic Baggers

Exact Weight Scale Co., Columbus, O.  
Stedman Foundry and Machine Co., Aurora, Ind.

## SCREENS

Ludlow-Saylor Wire Cloth Co., St. Louis, Mo.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Sturtevant Mill Co., Boston, Mass.

## SHOVEL LOADERS

Clark Equip't. Co., Benton Harbor, Mich.  
Hough, The Frank G. Co., Libertyville, Ill.  
Tractomotive Corp., Deerfield, Ill.

## SOILTEST EQUIPMENT

The Edwards Laboratory, Norwalk, O.

## SPRAYERS

Finco, Inc., N. Aurora, Ill.

## SPRAYS

Monarch Mfg. Works, Inc., Philadelphia, Pa.  
Spraying Systems Co., Bellwood, Ill.  
Baughman Mfg. Co., Jerseyville, Ill.

## SPREADERS, TRUCK

Baughman Manufacturing Co., Jerseyville, Ill.  
Highway Equipment Co., Cedar Rapids, Ia.

## STORAGE TANKS

Cole, R. D., Manufacturing Co., Newnan, Ga.

## SULFATE OF AMMONIA

American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.

Bradley & Baker, N. Y. C.

Jackie, Frank R., New York City

Lion Oil Co., El Dorado, Ark.

Nitrogen Div., Allied Chemical & Dye Corp., N.Y.C.

Phillips Chemical Co., Bartlesville, Okla.

Woodward & Dickerson, Inc., Philadelphia, Pa.

## SULFATE OF POTASH—MAGNESIA

International Min. & Chem. Corp., Chicago, Ill.

## SULFUR

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Texas Gulf Sulphur Co., New York City  
Woodward & Dickerson, Inc., Philadelphia, Pa.

## SULFUR—Dusting & Spraying

Ashcraft-Wilkinson Co., Atlanta, Ga.  
U. S. Phosphoric Products Div., Tennessee Corp., Tampa, Fla.

## SULFURIC ACID

American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
International Min. & Chem. Corp., Chicago, Ill.  
Lion Oil Company, El Dorado, Ark.  
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

## SUPERPHOSPHATE

American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
Davison Chemical Co., div. of W. R. Grace & Co., Baltimore, Md.  
International Min. & Chem. Corp., Chicago, Ill.  
Jackie, Frank R., New York City  
McIver & Son, Alex. M., Charleston, S. C.  
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

## SUPERPHOSPHATE—Concentrated

Armour Fertilizer Works, Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
International Min. & Chem. Corp., Chicago, Ill.  
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

## TALC

Ashcraft-Wilkinson Co., Atlanta, Ga.

## TANKAGE

American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
International Min. & Chem. Corp., Chicago, Ill.  
Jackie, Frank R., New York City  
McIver & Son, Alex. M., Charleston, S. C.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

## TANKS—NH3 and Liquid N

Cole, R. D. Manufacturing Co., Newnan, Ga.

## TOXAPHENE

Ashcraft-Wilkinson Co., Atlanta, Ga.

## TRUCKS—SPREADER

Baughman Mfg. Co., Jerseyville, Ill.  
Highway Equipment Co., Cedar Rapids, Ia.

## UREA & UREA PRODUCTS

Atkins, Kroll & Co., San Francisco, Calif.  
Bradley & Baker, N. Y. C.  
Grand River Chem. Div., Deere & Co., Tulsa, Okla.  
Nitrogen Div., Allied Chemical & Dye Corp., N.Y.C.  
Sohio Chemical Co., Lima, O.

## UREA-FORM

Nitro-Form Agricultural Chemicals, Woonsocket, R. I.

## VALVES

Monarch Mfg. Works, Inc., Philadelphia, Pa.

## ZINC SULFATE

Tennessee Corp., Atlanta, Ga.





## Giant Servant of Agriculture

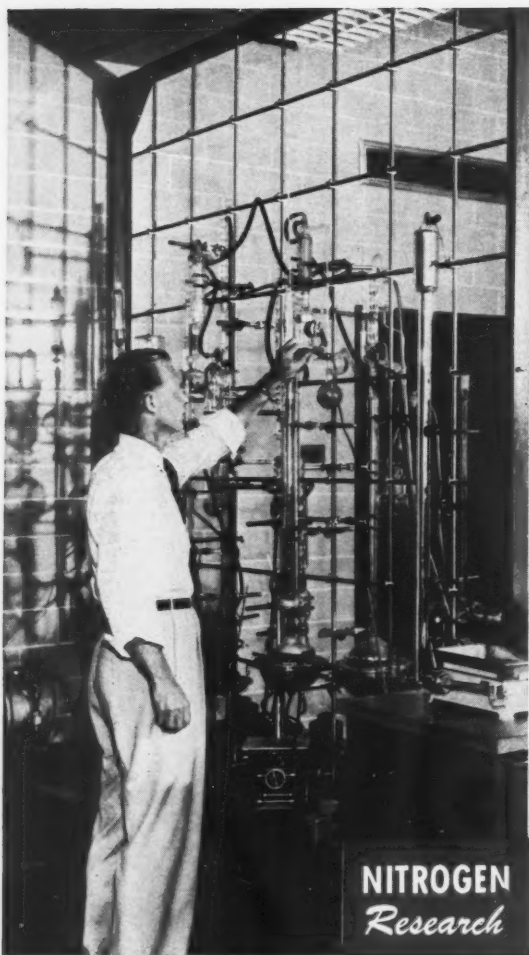
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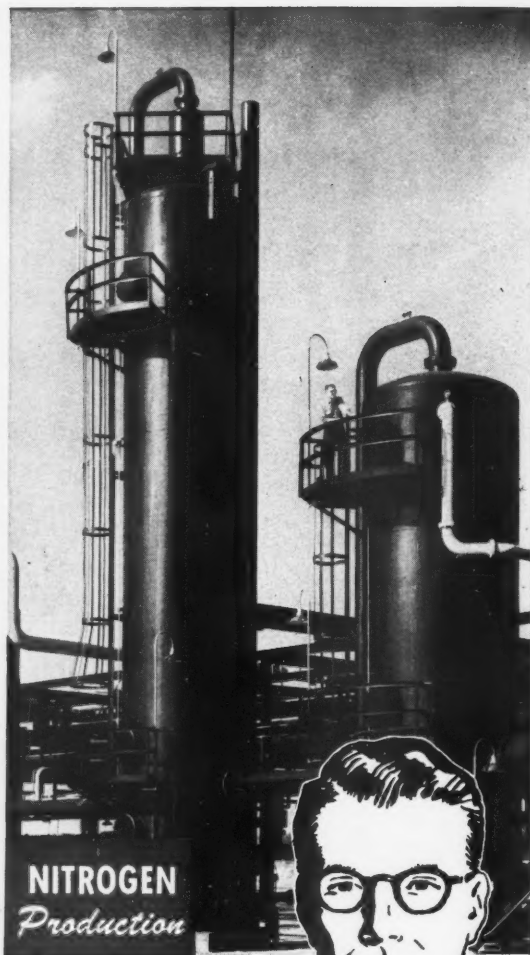


**POTASH COMPANY OF AMERICA**  
CARLSBAD, NEW MEXICO.

General Sales Office . . . 1625 Eye Street, N.W., Washington, D.C.  
Midwestern Sales Office . . . First National Bank Bldg., Peoria, Ill.  
Southern Sales Office . . . Candler Building, Atlanta, Ga.



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